Bates Technical College

COURSE CATALOG

2024 - 2025

BATES TECHNICAL COLLEGE

EST. 1940

Table of Contents

At-A-Glance Contact Information **5**
About Bates Technical College **9**

Enrollment Steps 11
DEGREES 13
HIGH SCHOOL DIPLOMA OPTIONS 14
CERTIFICATES 14
DEGREE AND PROGRAM REQUIREMENTS 14

General Education Courses *15*
General Education Requirements 15
Transferring Bates General Education credits earned at Bates to another college 15
General Education class credits and high school students 16
General Education Pathways 16
Common Courses 16

GI Bill® statement *17*
Limitation of Liability *17*
Notice: About this catalog *17*
Notice of Non-Discrimination *17*
Residency *17*
Translations of Non-Discrimination Statement *18*

Disability Support Services and Accommodation **20**
Enrollment and Attendance Policies **22**
Extended Learning and other programs **25**
Financial Aid **28**
Grading System **31**

Grading Procedures *31*
Reporting *31*
Program Curriculum *31*
Program Completion Times *32*
Academic Progress (Academic Standing) *32*
Academic Appeal *32*

International Student Information **33**
Student Rights and Responsibilities **36**

Family Educational Rights and Privacy Act (FERPA): Confidentiality of Student Records *36*
Student Right-To-Know *36*
Policy Prohibiting Hazing *37*
Sexual Harassment Policy *37*

Student Services **38**

Associated Student Government (ASG) *38*

Email Accounts for Students *39*
Emergency Closures and Delays *39*
Enrollment and College Calendar *40*
2024 - 2025 Calendar *41*
SUMMER QUARTER 2024 41
FALL QUARTER 2024 41
WINTER QUARTER 2025 41
SPRING QUARTER 2025 42
Financial Aid *42*
New Student Orientation *43*
Parking *43*
Refund and Return Policy *44*
Safety *44*
Advising and Retention *44*
Resident Tuition Error! Bookmark not defined.
Non-Resident Tuition Error! Bookmark not defined.
49
Tuition Refund Policy 50
Veterans Services *51*
VA Pending Payment Compliance *51*
Transcripts, Transfer of Credits **52**
Transcripts *52*
Transfer of Credits *52*
Credit for Military Service *52*
Transferability of Credits *52*
Transferability of General Education Credits *52*
Work-Based Learning *52*
Program Offerings **53**
General Education *53*
Associate of Applied Science (AAS) Degrees *53*
Associate of Applied Science Transfer (AAS-T) Degrees *53*
Associate of Applied Science - Communications Distribution 53
Associate of Applied Science - Quantitative Distribution 53
Associate of Applied Science - Sciences & Humanities Distribution 53
Associate of Applied Science - TRANSFER Communications Distribution 54
Associate of Applied Science - TRANSFER Quantitative Distribution 54
Associate of Applied Science - TRANSFER Sciences & Humanities Distribution 54
Accounting *54*
Administrative Medical Assistant *57*
Advanced Machining *60*
Applied Business Management *61*
Architectural Woodworking/Cabinet Making Technology *63*
Auto Body Rebuilding and Refinishing *65*
Automation and Mechatronics, TRON *68*
Automotive Technology *70*
Barber *72*
72

Biomedical Service Technician *73*
Broadcasting/Video Production *75*
Carpentry *82*
Certified Medical Assistant *86*
Cloud Computing and Networking Technology *88*
Commercial Truck Driving *92*
Culinary Arts *93*
Cybersecurity *95*
Dental Assisting *101*
Dental Lab Technician *103*
Denturist *105*
Diesel and Heavy Equipment Technology *107*
Digital Media *111*
Early Childhood Education *114*
Electrical Construction *119*
Electrical Engineering Technology *121*
Electronic Equipment Service Technician *123*
Emergency Medical Technician *124*
Facilities Maintenance Engineer *125*
Fire Service *129*
Heating, Ventilation, Air Conditioning and Refrigeration Technician *136*
Information Technology Specialist *138*
Mechanical Engineering Technology *143*
Motorcycle and Marine Technology *145*
Multi-Occupational Trades (MOT) *148*
Nursing Assistant Certified *155*
Occupational Therapy Assistant *155*
Phlebotomy *157*
Practical Nurse *157*
Pre-Nursing DTA-MRP *161*
Sheet Metal Technology *162*
Software Development *165*
Welding *169*

Course Descriptions **174**
Administration and Faculty Credential Guide **403**

2024-2025 Course Catalog

At-A-Glance Contact Information

BatesTech.edu, info@batestech.edu, 253.680.7000

- **Downtown Campus, 253.680.7000, 1101 South Yakima Avenue, Tacoma, WA 98405 (Enter at 1201 South Yakima Avenue)**
- **Central/Mohler Campus, 253.680.7603, 2320 South 19th Street, Tacoma, WA 98405**
- **South Campus, 253.680.7400, 2201 South 78th Street, Tacoma, WA 98409**
- **Toll free in-state, 800.562.7099**
- Admissions, registration@batestech.edu, 253.680.7019
- Adult Basic Education, www.batestech.edu/career-pathways/high-school/, 253.680.7274
- Advising, enrollment@batestech.edu, 253.680.7002
- Apprenticeship Training, www.BatesTech.edu/Apprenticeship, 253.680.7402
- Associated Student Government (ASG), www.BatesTech.edu/ASG 253.680.7178
- Barber Shop, www.batestech.edu/barber-shop, 253.680.7248
- Bookstore, https://bncvirtual.com/bates, 253.680.7430 (South Campus)
- Campus Life and Activities, www.batestech.edu/campus-life-activities, 253.680.7178
- Campus Public Safety, www.BatesTech.edu/Safety, 253.680.7111
- Career Education, www.BatesTech.edu/areas-of-study, enrollment@batestech.edu, 253.680.7002
- Child Care Center, 253.680.7320
- Child Studies, 253.680.7500
- Closure/Weather Information Line, www.BatesTech.edu/Weather, 253.680.7060
- Communications and Marketing, communications@batestech.edu, 253.680.7106
- Continuing Education, www.BatesTech.edu/ContinuingEd, cont-ed@batestech.edu, 253.680.7402
- Deaf Relay Services, 711 or Washington Relay, 1.800.833.6384
- Denturist Clinic, 253.680.7314
- Dining Services, www.BatesTech.edu/Dining, 253.680.7011
- Disability Support Services, www.BatesTech.edu/DSS, dss@batestech.edu, 253.680.7012
- English as a Second Language (ESL), www.batestech.edu/career-pathways/esl
- Emergency Management, www.BatesTech.edu/Emergency
- Early Childhood Education and Assistance Program (ECEAP), 253.680.7320
- Financial Aid, www.BatesTech.edu/FinancialAid, financialaid@batestech.edu, 253.680.7020
- Foundation, www.BatesTech.edu/Foundation, foundation@batestech.edu, 253.680.7160
- GED Test Preparation, www.batestech.edu/career-pathways/high-school/
- High School, highschool@batestech.edu, 253.680.7004
- High School + (HS+), 253.680.7274
- Human Resources, hr@batestech.edu, 253.680.7181
- International Student Services, www.BatesTech.edu/lnternational, international@batestech.edu, 253.680.7184
- KBTC Public Television, www.KBTC.org, 253.680.7700
- Library, www.BatesTech.edu/Library, Iibrary@batestech.edu, 253.680.7220 (Downtown), 253.680.7550 (South), 253-680-7625
- Outreach and Recruitment,

www.BatesTech.edu/Outreach, pchase@batestech.edu, 253.680.7302

- Registration, www.BatesTech.edu/Registration, registration@batestech.edu, 253.680.7019
- Running Start,www.batestech.edu/high-school-students, 253.680.7264
- Teacher Prep and Certification, 253.680.7467
- Veterans Benefits, www.BatesTech.edu/va-benefits, vabenefits@batestech.edu, VA Certifying Official, Downtown Campus, 253.680.7035
- Workforce Education Services, www.BatesTech.edu/student-resources/workforce-education-services/, workforce@batestech.edu, 253.680.7020

General Information

Mission

Bates Technical College enriches our diverse communities by inspiring student learning, challenging greater achievement, and educating for employment.

Core Themes

Bates Technical College measures mission fulfillment through four strategic core themes.

Workforce Education: We are committed to providing high quality training that helps students realize their potential for growth and success through innovative instruction.

Student Centered: We support students, enabling them to succeed, to aspire to education, to reach their educational goals and transition successfully to further education or employment.

General Education: We recognize the skills and knowledge attained through general and related education are essential to success and ensuring well-rounded learners.

Community Relationships: We understand strong local and global partnerships with business, industry, labor and the public make the college a respected, effective community resource, contributing to local community vitality.

History

Learn. Grow. Transform.

Founded in 1940, Bates Technical College is a proud member of Washington state's 34 public community and technical college system. For more than eight decades, the college has provided our region with accessible, affordable and quality educational programs that lead students to careers, and employers to well-trained employees. Originally a part of the Tacoma School District, the college began offering technical education to aid war efforts in the basement of an East Tacoma elementary school.

Initially named Tacoma Vocational School, the institute was a vital training location for the area. The site helped meet demand for skilled workers who would support the World War II defense effort.

When longtime Director of Vocational Education Laverne Bates retired, the school board changed the school's name to Bates Vocational Technical Institute.

A 1991 state bill removed vocational schools from local school districts and set them under the community college system. Today, Bates Technical College has grown to three vibrant Tacoma locations offering more than 50 degree and certificate programs, providing our graduates with a competitive workplace edge in a wide range of career disciplines.

Our employees embody the college mission to enrich our diverse communities by inspiring student learning, challenging greater achievement, and educating for employment.

Residents of Pierce County and beyond choose Bates as their educational partner because we offer affordable educational opportunities for everyone, from certificates, certifications, Associate of Applied Science, and Associate of Applied Science-Transfer degrees, to adult education, lifelong learning and high school completion options.

Connect with us.

- **Facebook**
- **Twitter**
- **Instagram**
- **LinkedIn**

Bates Technical College Foundation

BatesTech.edu/Foundation

Bates Technical College Foundation exists to support student and program success by securing resources through building community relationships and awareness. Through this nonprofit organization, local businesses, community members and Bates employees contribute to the foundation, providing over $250,000 annually in scholarships, grants, faculty development opportunities, program support and emergency student assistance.

Bates Technical College Foundation Mission: Student success is at the heart of everything we do.

Foundation Scholarships

SCHOLARSHIPS

The Bates Technical College Foundation offers scholarships to new and current students every quarter. Scholarship offerings vary with awards ranging from $500 to $1,500 per quarter. Applications are available online at BatesTech.edu/Foundation. To request information by email, please contact foundation@batestech.edu.

Who is eligible to apply for scholarships through the Bates Technical College Foundation?

All full-time Bates students registered in degree and certificate programs are eligible to apply for scholarships. Some scholarships are open to students in any program, while others are limited to specific programs. Please read each scholarship announcement to determine eligibility. Technical High School and Running Start students are not eligible for Bates Foundation scholarships.

Can I still apply for a scholarship even if I receive financial aid?

Yes. Students are encouraged to apply for scholarships if their financial aid does not completely cover their tuition or if they have student loans. Scholarships can also be used to purchase books, supplies and program-related tools. However, scholarship awards may be deducted from a student's financial aid budget. Students should consult with the financial aid office to determine how a scholarship will affect their financial aid package.

Can I apply for a scholarship even if I received one in a previous quarter?

Yes. Students are encouraged to apply for scholarships each quarter.

What is involved in the application process?

The scholarship application is filled out online at https://batesfoundation.awardspring.com/. The application consists of filling out general and academic information, and several short-answer essay questions. Applicants also submit their unofficial transcript and a letter of recommendation. Students must be in good academic standing to be considered for a scholarship.

Can I use my scholarship for living expenses such as rent, utilities and childcare?

No. Foundation scholarships may only be used towards tuition and fees, books, tools or supplies. Learn more at BatesTech.edu/Foundation.

Advisory Committees

Advisory Committees

Over 300 individuals serve on 35+ program advisory committees. These committee members represent partnerships with business, labor, and industry; provide curriculum recommendations to the college; and often offer program equipment, scholarships, and career opportunities for students.

Career Education

Unique classroom settings mirror the workplace, providing students with opportunities to practice and develop skills to levels required for successful employment. Students in specific programs gain hands-on experience in campus facilities.

Diverse Populations

Our students and employees come from diverse backgrounds, races, religions and points of view. The ages of students in any given class might range from 16 to 60 and can be high school students just starting their educational or career tracks, or people returning to college for a career change or to update their skills.

Diversity Statement

Diversity supports the mission of Bates Technical College. Respecting and promoting diversity is vital to the education of our students and to the learning environment of our campus community. We foster an atmosphere where each of us is valued for our intellectual and cultural

perspectives, increasing our ability to reflect critically and resolve challenges. We share a wealth of experiences that strengthens us individually and as a society. As students and educators, we commit to building a diverse and engaged community.

Diversity, Equity, and Inclusion Committee

batestech.edu/dei/

The Diversity, Equity, and Inclusion (DEI) Committee consists of students, staff, and faculty responsible for promoting and fostering an environment of DEI principles within our college community. The purpose of the committee is to assist in the creation and implementation of policies, programs, and initiatives that support equitable opportunities and outcomes for all individuals, regardless of their race, ethnicity, gender, sexual orientation, religion, age, ability, or any other characteristic. The function of the committee is to establish measurable goals, monitor progress, and make recommendations for continuous improvement to ensure diversity, equity, and inclusion remain a hallmark of BTC culture.

About Bates Technical College

Accreditation

Bates Technical College is accredited by the Northwest Commission on Colleges and Universities. Accreditation of an institution of higher education by the Northwest Commission on Colleges and Universities indicates that it meets or exceeds criteria for the assessment of institutional quality evaluated through a peer review process.

An accredited college or university is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the Northwest Commission on Colleges and Universities is not partial but applies to the institution as a whole. As such, it is not a guarantee of every course or program offered, or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding an institution's accredited status by the Northwest Commission on Colleges and Universities should be directed to the administrative staff of the institution. Individuals may also contact:

Northwest Commission on Colleges and Universities
8060 165th Avenue N.E., Suite 100
Redmond, WA 98052
425.558.4224
www.nwccu.org

For more information about accreditation at Bates, please visit https://www.batestech.edu/about-bates/accreditation.

Adult Basic Education, I-BEST, High School Options

Adult Basic Education (ABE)

Enroll in reading, writing or pre-algebra math courses to improve your college readiness skills or prepare for employment.

High School+ (Adult High School)

If you're an adult without a diploma, and you'd like to take your career to the next level, then this program might be the right one for you. High School+ is an ability-based program that considers a combination of life experiences and previous high school credits and helps guide you toward earning your diploma.

GED Test Preparation

Enroll in math, science, social studies and literacy courses to prepare for GED testing. Free GED practice testing is available to enrolled students.

Integrated Basic Education Skills Training (I-BEST)/HS+

Earn your high school diploma and work towards your college degree at the same time in one of our I-BEST supported programs:

- Diesel and Heavy Equipment Technology
- Electrical Construction
- Fire Service
- Heating, Ventilation, Air Conditioning/Refrigeration

Running Start

Most of the career education programs at Bates Technical College are state approved Running Start courses. The Running Start program allows academically qualified high school juniors and seniors to register in career education programs at Bates to earn credit toward a high school diploma and an Associate in Applied Science degree or a certificate concurrently. Eligibility is determined by your local high school counselor. Approved college courses are tuition free, and all other fees are waived including books, tools, supplies, lab fees, etc. (subject to change).

Running Start students may also complete college-level general education courses required by their high school at Bates. Interested students must obtain permission from their current school district to register in Running Start at Bates.

To Register for Running Start

Contact the Bates high school office at 253.680.7004 to arrange a meeting with a high school counselor to learn

more about registration requirements. After meeting with your local high school counselor to determine eligibility for the program you can complete the Running Start Enrollment Verification Form (RSEVF), provide a current transcript, and complete the Bates Technical College Running Start application materials.

Once a student has completed the admissions process, they will meet with a counselor and complete an education plan to register and begin classes.

Technical High School

Bates Technical High School provides an opportunity for high school students (aged 16-21) to pursue career training in about 40 programs earning their high school diploma and an Associate of Applied Science degree. Individual graduation plans will vary depending on a student's choice of program, availability and commitment to the coursework.

There are no tuition or lab fees for Technical High School students. In addition, we provide textbooks, tools, supplies, and laptops for students learning in both classroom settings and hands-on learning environments.

To Register for Technical High School

Students can begin the registration process by attending a Technical High School orientation session or schedule an individualized appointment with a high school counselor by contacting the high school office at 253.680.7004. The student will then need to complete the application packet, which includes a release from their local high school, an official transcript from your previous high school(s) and a parental release form for minors.

Once all paperwork is complete and the student is admitted they and/or their parents or guardian will meet with a counselor and complete an education plan based on their chosen program and previous transcript; once the education plan is in place, students may be enrolled in classes. Students will be provided with a checklist of things to complete before classes begin. This includes any online account activation information, bus or parking pass, supplies needed for coursework, etc. Enrolled students will meet quarterly with their high school counselor to ensure they are following their education plan to stay on track with their courses. Visit www.Batestech.edu/HighSchool for more information.

Technical High School Graduation Requirements

- Earn at least 24 high school credits, including:
- English: 4 credits
- Mathematics: 3 credits
- Science: 3 credits
- Social Studies: 3 credits
- Art: 2 credits (1 Art credit may be replaced with Career Pathways requirements)
- Occupational Education: 1 credit
- Health and Fitness: 2 credits
- Electives: 4 credits

***NOTE:** If a student chooses to pursue a program that culminates in an associate degree (AA, AAS, AAS-T), the student may disregard all high school requirements and concentrate solely on the career pathway. Once the associate degree is earned, the student automatically earns their high school diploma.

Complete a culminating project and High School and Beyond Plan. Your high school counselor will help you plan each step to complete your high school graduation requirements.
Pass State Tests or State-approved alternative.

Students must earn a Certificate of Academic Achievement (CAA), by passing the reading and writing High School Smarter Balanced Assessment (SBA) and an End-of-Course (EOC) mathematics exam, or an approved alternative for each area.

Approved alternatives at Bates Technical High School include successful completion of our college transition courses: English 090 or 091, and Math 096 or 098.

Articulation Agreements

BatesTech.edu/community/partnerships

Bates has articulation agreements with many colleges and universities, including University of Washington Tacoma, Eastern Washington University, The Evergreen State College, Highline College, and many more.

For more information, see career training program information or contact a career advisor.

Career Education Program

Registration

Enrollment Steps

Step 1: Apply for Admission to Bates Technical College

- Complete the Online Admission Application.
- Upon acceptance, you will receive an email that includes your next steps. *Bates does not require official high school transcripts as part of the adult enrollment process.*
- Activate your ctcLink account. You will receive an acceptance email with your ctcLink ID and the link to activate your account. For more information and instructions, visit our website.
- Apply for financial aid. Visit our website for more information on financial aid.

Step 2: Complete your English and Math College Placement

Your placement helps you and your advisor decide which classes you can take to reach your goals. There are two basic ways to complete Math and English placement requirements. You need to complete one of the options below before you can continue to Step 3 and meet with your advisor to enroll in classes.

Option A:

- Upload your unofficial transcripts or previous test scores. You will need to share this by uploading these documents into your ctcLink Portal; options include, unofficial high school or college transcripts, GED certificate, or previous test scores (Accuplacer, Smarter Balance, ACT or SAT). Accuplacer, Smarter Balance, unofficial high school transcripts, and GED certificates are valid within the last 2 years only. Pending review of your high school transcript, further assessment in Math and English may be necessary as described in Option B.

Option B:

- Depending upon your academic background, you may need to complete a self-guided placement process for Math and/or English for a current assessment of your skills. Note: Each of these resources is designed to assess current skills and will include opportunities to review and refresh your skills.

Math Boot Camp & Assessment - once you sign up, it can take up to 48 hours until your account is activated.

English Directed Self-Placement

Once you complete these processes, your results will be forwarded to you and your career advisor who will assist in placing you at the correct level in your required general education courses to receive your degree or credential.

Step 3: Enroll in Classes with your Advisor

Once you have completed the above steps, you are ready to enroll in classes. All new students are required to meet with a career advisor to enroll in classes their first quarter.

BEFORE you schedule a time with your Advisor you need to have already completed Steps 1 and 2. Bring your unofficial transcripts or English and Math Placement assessment information to this appointment.

Military Service Personnel and eligible dependents: Eligible service members who intend to utilize Tuition Assistance (TA) must receive approval from an Educational Services Officer (ESO) or Counselor within the Military Services prior to enrolling for courses at Bates Technical College at the Stone Ed Center on base.

Certifications and Professional License Preparation

Certifications for Industry

Bates offers many courses that prepare students for industry-standard certifications as part of a degree program or as a separate professional track. Students are encouraged to obtain as many certifications as possible while completing career education programs. Certifications indicate to prospective employer that a person has successfully shown an understanding of the technical knowledge required in a chosen field.

Certifications

- Commercial Refrigeration
- Light Commercial Heating and AC
- Residential Heating and AC

- Automotive Service Excellence (ASE)
- Certified Dental Assistant (CDA)
- Certified Medical Transcriptionist
- Cisco Certified Network Associate (CCNA)
- EPA Section 608 II Technician
- Amazon AWS Solutions Architect
- Certified Erosion and Sediment Control Lead (CESCL)
- ACI Concrete Strength Testing Technician Certification (CP-19)
- Certification of Engineering
- Certified Electronic Technician (CET through ISCET
- Certified Fiber Optics Technician (FOA)
- Certified Internet Web Professional (CIW)
- CIW User Interface Designer
- Electrical Engineering Technician (EET)
- EPA 308 (DFC Refrigerants)
- Inter-Industry Conference on Auto Collision Repair (I-CAR)
- International Conference of Building Officials (ICBO)
- Mobile Electronics Certified Professional (MECP)
- Networking Cabling Specialist (C-Tech)
- Network Cabling Systems (Leviton)

Preparation

- National Institute for the Technicians (NICET)
- NIMS Machinist and Toolmaking Technology
- Adobe
- Adobe Certified Associate
- Photoshop
- CompTIA
- A+
- Network+
- Security+
- Microsoft Corporation
- Certified Systems Administrator (MCSA)
- Microsoft Office Specialist (MOS)
- Modern Desktop Administrator Associate
- Microsoft Asure Fundamentals
- SolidWorks
- CSWA-Mechanical Design
- CSWP-Mechanical Design
- Oracle
- Oracle 11g Oracle Certified Associate (OCA)

Fire Service

Bates Fire Service Training is accredited to National Fire Protection Association (NFPA) standards by the Washington State Patrol, Office of the State Fire Marshall, and the Fire Protection Policy Board through the International Fire Service Accreditation Congress (IFSAC) at the following levels:

- Firefighter I
- Firefighter II
- Fire Apparatus Driver/Operator*
- Fire Instructor I
- Fire Instructor II
- Fire Officer I
- Fire Officer II
- Fire Officer III*
- Fire Safety Officer*
- Fire and Life Safety Educator I
- Hazardous Materials Awareness
- Hazardous Materials Operations
- Public Information Officer*

*Pending approval from the Washington State Fire Marshall

Certification Preparation, Training and Testing

Bates is a primary trainer and provider of certification testing in several professions, including:

- Boiler Testing and Certification Class I, 11, III
- Operating Engineer Class IV Fireman
- Operator Class V Boiler Fireman
- CDL Truck Driver testing Certification
- Engine and Equipment Training Center
- High School career and technical teacher preparation
- Air Conditioning and Refrigeration Institute (ARI) Industry Competency Exam
- Post-secondary professional-technical certifications
- Washington Association of Building Officials (WABO)
- American Welding Society (AWS)
- Society of Broadcast Engineers (SBE)
- Certified Television Operator (CTO)
- Certified Broadcast Technologist (CBT)
- Certified Broadcast Network Technologist (CBNT)
- Federal Aviation Administration (FAA)
- FAA Aeronautical Knowledge Test (sUAS part 107 certification)

Professional License Preparation

Students are encouraged to prepare and apply for the appropriate license for their profession prior to program completion. Occupational Therapy Assistant program students can apply for state license after passing the NBCOT.

- Federal Communications Commission
- General Radiotelephone Operator License
- Radar Endorsement
- Maritime Distress and Safety System (GMDSS)
- State of Washington
- Barber
- Class A Communications
- Denturist
- Hearing Aid Fitter/Dispenser
- Licensed Practical Nurse
- Occupational Therapy Assistant
- STARS (State Training and Registry System)
- National Board for Certification in Dental Technology
- Recognized Graduate (RG)
- Certified Dental Technician (CDT)
- National Board for Certification in Occupational Therapy (NBCOT)

Degrees and Certificates

Credentials of Completion

Bates Technical College provides academic general education transfer courses and professional and technical programs aligned with state policies and statewide agreements. Bates Technical College offers the following types of completion credentials.

DEGREES

The Associate of Applied Science (AAS) is awarded to students who satisfactorily complete programs that are 90 credits or more, includes a core of 15 credits of college-level related instruction, and have earned a cumulative grade point average of 2.0 as calculated by the college.

The Associate of Applied Science – Transfer (AAS-T) degree is awarded to students who successfully complete programs that are 90 credits or more, includes a core of 20 credits of college-level general education, and have earned a cumulative grade point average of 2.0 as calculated by the college. The general education component of the transferable technical degree is to be comprised of not less than 20 credits of courses generally accepted in transfer. These 20 credits must include as a minimum the following:

5 credits in Communication English Composition; 5 credits in Quantitative Skills (any course from the generally accepted in transfer list with Intermediate Algebra as a prerequisite); 10 credits in Science, Social Science, or Humanities Courses selected from the generally accepted in transfer list, including a course meeting the human relations requirement.

The Direct Transfer Associate Degree (DTA) and Major Related Program Degree (MRP) are awarded to students who have completed 90 credits or more and earned a cumulative grade point average of a 2.0 as calculated by the college, including 60 credits of which must be college-level general education courses distributed as follows:

- 10 Credits, Communication Skills
- 5 Credits, Quantitative/Symbolic Reasoning
- 15-20 Credits, Humanities
- 15-20 Credits, Social Services
- 15-20 Credits, Natural Sciences
- 15 credits maximum college-level courses determined by Bates Technical College and the remainder shall be fully transferable as defined by the receiving institution.

Associate in Apprenticeship Studies is designed to serve individuals completing approved apprenticeship programs at Bates Technical College. The degree option includes both general education requirements and the technical requirements of an apprenticeship program. Content includes state-approved joint apprenticeship programs, plans for four general education courses (20 credits) in human relations/social sciences, communications, and computation. Students must complete at least 6,000 clock hours on the job and at least 432 clock hours of apprenticeship-related instruction. Courses completed at another institution may be transferable by approval of the college registrar.

HIGH SCHOOL DIPLOMA OPTIONS

Adult High School (HS+) is a competency-based high school diploma program for adult learners 18 and older who do not have a high school diploma or equivalency. Adults demonstrate competencies in reading, writing and math contextualized in science, history, government, occupational studies, and digital literacy.

Bates Technical High School is designed to serve students in high school age (i.e., 16-21 years old) completing their high school diploma while attending career training programsunder the supervision of the Office of the Superintendent of Public Instruction's (OSPI) high school diploma regulations.

A Bates Technical College High School Diploma may be issued to a student who is older than 21 years of age, upon written request from that student, and who earned their associate degree from the college.

CERTIFICATES

A certificate is an award which may be earned by completion of the competencies and requirements for an occupational program.

Certificate of Competency is at least 45 credits in length. Certificates that are 45 credit hours or more must include related instruction as a component. Completion requirements include:

- A minimum of 30 college-level career technical education credits as outlined in the college catalog.
- The completion of 15 credits of related instruction courses, 5 each in communication, computation, and human relations.

Certificate of Training is less than 45 credits in length. Certificates less than 45 credit hours in length do not necessarily include related instruction.

DEGREE AND PROGRAM REQUIREMENTS

All for-credit degrees and certificates adhere to the requirements and policies established and outlined by the State of Washington, State Board for Community and Technical Colleges, and the Intercollege Relations Commission Handbook.

Resources

Washington State Code: RCW 28B.50.140(12) and RCW

28B.50.215
Washington State Board for Community and Technical Colleges
SBCTC Major-related programs: https://www.sbctc.edu/colleges-staff/programs-services/transfer/major-related-programs.aspx
Intercollege Relations Commission (ICRC)

Grade Point Average and Residency Requirements

To graduate with a credential from Bates Technical College:

- A student must have a cumulative college-level grade point average of no less than a 2.0.
- A student must achieve “residency” at Bates Technical College, meaning that a minimum number of credits must be earned at Bates Technical College for a student to earn their credential from the college. To meet residency, the student must earn a minimum of:
- Twenty (20) college-level credits at Bates Technical College, or
- Twenty-five (25) percent of the credits applicable to the credential at Bates Technical College.

General Education Courses

General education and related instruction courses provide students with college (100- and 200-level) instruction in academic areas such as natural sciences, mathematics, English, psychology, communications, and human relations. These courses teach skills that apply to all areas of career education and ensure that Bates graduates have professional communication and computation skills that complement their career choice.

General education courses are required as part of degree and certificate achievement and are necessary for the pursuit of higher-level degrees. General education requirements for degree and certificate programs at Bates Technical College vary, depending upon the program, the credential, and the track the student chooses to pursue.

A prospective Bates student should check with their career advisor and determine the actual general education courses required to complete their degree or certificate. Students who seek to complete their 100- or 200-level academic prerequisites for admittance into competitive degree programs at area colleges are welcome to enroll in any of Bates' general education 100- or 200-level college transfer courses.

Students who wish to enroll in transfer courses are welcome to contact the advising office at 253.680.7002 to request an advising appointment to facilitate registration into these courses.

Students must register for general education classes quarterly. Early registration is recommended, as space is limited, and certain classes and class offering times tend to fill up quickly. Schedule information is available via the Class Search in ctcLink. Most general education courses are available in alternative delivery formats (i.e., online courses or hybrid courses that provide a mix of online and face-to-face interaction with the instructor).

General Education Requirements

General education requirements may be met in any combination of the following:

- Complete general education classes at Bates Technical College.
- Receive transfer credits based upon an evaluation of courses taken while in military service or by passing recognized post-secondary exams such as DANTES, CLEP, Advanced Placement (AP) or International Baccalaureate (IB) in a relevant subject area. Request transfer of course credit completed at other colleges to Bates Technical College. Students must provide the college Registration Office with an official transcript and request a transfer evaluation. The transcript evaluator will determine if courses can be applied to a student's credential or degree requirements.

Transferring Bates General Education credits earned at Bates to another college

The transferability of general education credits earned at Bates is subject to the policies of the receiving institution. Common Course (&) courses are generally transferrable to other colleges but cannot be guaranteed.

General Education class credits and high school students

Students registered as Running Start students must take 100-level or above general education classes to be eligible for Running Start funding. Bates Technical High School students may take general education courses at any level, if they meet or exceed the minimum course requirements. General education credit earned is applied to a student's college and high school transcript, and helps students meet their high school diploma requirements and degree and certificate requirements at Bates Technical College.

General Education Pathways

Each Bates program has specific requirements for general education classes. Students should seek the advice of their career advisor and instructors regarding the sequence in which they take their general education classes. Typically, many general education courses may satisfy a particular degree requirement. Students should consider which of those courses best complements their degree program.

Note: Students register in initial general education courses based on placement test scores or other assessment methods can move sequentially through the General Education Pathway.

Common Courses

Common course numbering makes course transfer between and among Washington State's 34 community and technical colleges easier for students, advisors, career advisors, and receiving institutions.

- ACCT& 201 Principles of Accounting I
- ACCT& 202 Principles of Accounting II
- ACCT& 203 Principles of Accounting Ill
- BIOL& 160 General Biology with Lab
- BIOL& 175 Human Biology with Lab
- BIOL& 241 Human Anatomy and Physiology I
- BIOL& 242 Human Anatomy and Physiology II
- BIOL& 260 Microbiology
- BUS& 101 Introduction to Business
- BUS& 201 Business Law
- CMST& 102 Introduction to Mass Media
- CMST& 210 Interpersonal Communication
- CMST& 220 Public Speaking
- CMST& 230 Small Group Communication
- CS& 131 Computer Science I C++
- CS& 141 Computer Science Java
- CHEM& 121 General Chemistry
- ECED& 105 Introduction to Early Child Education
- ECED& 107 Health/Nutrition/Safety
- ECED& 120 Practicum-Nurturing Relationships
- ECED& 132 Infant Toddler Caregiving
- ECED& 134 Family Child Care
- ECED& 139 Admin of Early Learning
- ECED& 160 Curriculum Development
- ECED& 170 Environment-Young Children
- ECED& 180 Language/Literacy Development
- ECED& 190 Observation/Assessment
- ECON& 201 Microeconomics
- ECON& 202 Macroeconomics
- ENGL& 101 English Composition I
- ENGL& 102 English Composition II
- ENGL& 235 Technical Writing
- HIST& 146 United States History I
- HIST& 147 United States History II
- HIST& 148 United States History III
- MATH& 107 Math in Society
- MATH& 141 Precalculus I
- MATH& 142 Precalculus II
- MATH& 146 Introduction to Statistics
- MATH& 151 Calculus I

- MATH& 152 Calculus II
- MATH& 153 Calculus III
- NUTR& 101 Introduction to Nutrition
- POLS& 101 Introduction to Political Science
- PSYC& 100 General Psychology
- PSYC& 200 Lifespan Psychology
- PHYS& 114 Introductory Physics I
- PHYS& 221 Engineering Physics I
- PHYS& 222 Engineering Physics II
- PHYS& 223 Engineering Physics III
- SOC& 101 Introduction to Sociology

GI Bill® statement

GI Bill® is a registered trademark of the US Department of Veterans Affairs (VA). More information about educational benefits offered by the VA is available at the official US government website at https://www.benefits.va.gov/gibill.

Limitation of Liability

The college's total liability for claims arising from a contractual relationship with the student in any way related to classes or programs shall be limited to the tuition and expenses paid by the student to the college for those classes or programs. In no event shall the college be liable for any special, indirect, incidental, or consequential damages, including but not limited to, loss of earning or profits.

Notice: About this catalog

The information in the Course Catalog is accurate as of June 2023 and contains information relating to the 2023-2024 academic year. Bates Technical College reserves the right to make corrections and changes affecting policies, fees, curricula or any other matters contained in this and subsequent issues of the catalog or in any of its other publications.

Bates Technical College does not and will not provide any commission, bonus, or other incentive payment based directly or indirectly on success in securing enrollment or financial aid to any persons or entities engaged in any student recruiting or admissions activities or in making decisions regarding the award of student financial assistance. Selected programs of study at Bates Technical College are approved by the Workforce Training and Education Coordinating Board's State Approving Agency (WTECB/SM) for enrollment of those eligible to receive benefits under Title 38 and Title 10, USC.

Notice of Non-Discrimination

Bates Technical College offers 45+ career and technical education programs in accounting, practical nurse, barber, early childhood education, fire service, culinary arts and more.

Bates Technical College reaffirms its policy of equal opportunity and does not discriminate on the basis of race, ethnicity, color, national origin, creed, religion, sex, sexual orientation, gender identity, age, marital status, disability, or status as a disabled veteran or Vietnam era veteran in its programs and activities in accordance with college policy, and applicable federal and state statutes and regulations. Bates publications are available in alternate formats upon request by contacting the disability support services office at 253-680-7010.

Inquiries regarding Bates' non-discriminatory policies, including Title IX and ADA, should be directed to: for student matters, the Dean of Advising and Retention, enrollment@batestech.edu, Downtown Campus A211D.

for employee matters, the Executive Director of Human Resources, HR@batestech.edu, Downtown Campus A326.

If you need assistance because you are a person with a disability, contact the Disability Support Services at DSS@batestech.edu.

Residency

A student must achieve "residency" at Bates Technical College, meaning that a minimum number of credits must be earned at Bates Technical College for a student to earn their credential from the college.

To meet residency, the student must earn a minimum of:

- Twenty (20) college-level credits at Bates Technical College, or
- Twenty-five (25) percent of the credits applicable to the credential at Bates Technical College.

Translations of Non-Discrimination Statement

Bates Technical College complies with federal and state laws specifically requiring that the college does not discriminate on the basis of race, ethnicity, color, creed, religion, national origin, sex, sexual orientation, age, marital status, gender identity, disability, or status as a disabled veteran or Vietnam era veteran in its programs and activities. Bates Technical College will address any barriers to admission and participation in technical or academic programs. This notice of non-discrimination is available in the following languages:

Korean

Bates Technical College 는 회계, 실무 간호사, 이발사, 유아 교육, 소방 서비스, 요리 예술 등 45 개 이상의 직업 및 기술 교육 프로그램을 제공합니다.

Bates Technical College 는 학교 방침과 해당 연방 및 주정부 법령 및 규정에 따라 프로그램 및 활동에 대해 민족, 피부색, 출신 국가, 신념, 종교, 성별, 성적 취향, 성별 정체성, 나이, 결혼 여부, 장애인, 장애 상이군인 등을 비차별 하지 않으며 동등한 기회를 제공합니다. Bates 간행물은 요청시, 장애 지원 서비스 253-680-7010 에 연락하시면 여러가지 형식으로 제공이 가능합니다.

타이틀 IX 및 ADA 를 포함한 베이츠의 비차별 방침에 관한 문의는 학생관련 경우, 권고 및 유지 학장 에게 enrollment@batestech.edu, 다운타운 캠퍼스 A211D로 문의해야 합니다. 직원관련에 대한 문의는 인사 담당 상무 이사에게 HR@batestech.edu 다운타운 캠퍼스 A326로 문의하십시요.

귀하가 장애를 가진 사람이기 때문에 도움이 필요할 경우 DSS@batestech.edu 로 장애 지원 서비스에 문의하십시요.

1101 South Yakima Avenue, Tacoma, Washington 98405, 1-800-562-7099。

Chinese

Traditional Chinese

反歧視聲明

貝茨技術學院提供超過45個職業和技術教育項目，包括會計、實用護士、理髮師、幼兒教育、消防服務、烹飪藝術等專業。

貝茨技術學院重申本校的平等機會政策，
不得以種族、民族、膚色、國籍、信仰、性別、性取向、性別認同、年齡、婚姻狀況、殘疾、退伍軍人或越戰退伍軍人的身份為由，在其課程和活動中進行歧視，遵守學院政策以及適用的聯邦和州法規。貝茨學院的出版品提供多種語言版本，
如有需求請聯絡殘障支援服務辦公室: 253-680-7010。

有關貝茨學院反歧視政策的問題，
包括《第九法案》和《美國殘疾人法案》，
學生相關諮詢，請聯繫院長enrollment@batestech.edu，
市中心校區A211D辦公室。

員工相關諮詢，請聯絡人力資源總監 HR@batestech.edu，
市中心校區A326辦公室。

如果您是殘障人士需要協助，
請聯絡殘障支援服務電子郵件：DSS@batestech.edu

Chinese

Simplified Chinese

反歧视声明

贝茨技术学院提供超过45个职业和技术教育项目，包括会计、实用护士、理发师、幼儿教育、消防服务、烹饪艺术等专业。

贝茨技术学院重申本校的平等机会政策，
不得以种族、民族、肤色、国籍、信仰、性别、性取向、性别认同、年龄、婚姻状况、残疾、退伍军人或越战退伍军人的身份为由，在其课程和活动中进行歧视，遵守学院政策以及适用的联邦和州法规。贝茨学院的出版物提供多种语言版本，
如有需求请联系残障支持服务办公室: 253-680-7010。

有关贝茨学院反歧视政策的问题，
包括《第九法案》和《美国残疾人法案》，
学生相关咨询，请联系院长enrollment@batestech.edu，
市中心校区A211D办公室。

员工相关咨询，请联系人力资源总监 HR@batestech.edu，
市中心校区A326办公室。

如果您是残障人士需要帮助，
请联系残障支持服务电子邮箱：DSS@batestech.edu

Russian

ИнФормация о недискриминации в Техничеком

Колледже им. Бейтса сейчас доступна на

английском, корейском, китайском, русском и испанском, языках. Если вы хотели бы приобрести её копию на любом из выше перечисленных языков, пожалуйста обратитесь в офис Прав и Обязаностей человека или в офис Охраны и Безопасности, 253.680.7180, или hr@batestech.edu.

Spanish

El aviso de no discriminación de Bates Technical College está disponsible en inglés, coreano, chino, ruso y español. Si desea un copia de la declaración en una de las lenguas indicadas, por favor, solicite una copia del Vice presidente de recursos humanos y seguridad del campus, 253.680.7180 o hr@batestech.edu.

Disability Support Services and Accommodation

www.BatesTech.edu/DSS

The primary focus of Disability Support Services (DSS) is to ensure nondiscrimination based on disability.

Students have the right to services and reasonable accommodations providing you meet the basic requirements to perform the activities of the program, that is, you are "otherwise qualified" to be an Bates student. Your responsibilities to receive accommodations include the following:

- Identify yourself as a student with a documented disability to the Disability Support Services Office
- Present formal written documentation of your disability
- Request reasonable accommodations
- Request services prior for every quarter you're enrolled (accommodations aren't retroactive to previous work)
- Meet and maintain academic standards
- Communicate with your instructors and DSS staff about your accommodations and needs

Attendance

Students are expected to attend their scheduled classes. The instructor determines the number of absences that are allowed in his or her class. If a student with a disability has an absence from class due to a disability-related circumstance, he or she should contact DSS. Documentation must support the disability-related circumstance. The absence does not excuse the student from the obligation of any assignments, homework, tests/exams, and obtaining material missed during the absence. Students are responsible for contacting their instructors.

Confidentiality

Information regarding a student's disability is considered confidential. Information will not be released to anyone outside of the college without the written permission of the student. Information may be shared within the college with appropriate faculty and staff to facilitate services and reasonable accommodations.

Course Substitutions/Waivers

Bates Technical College does not substitute courses or waive course requirements that would alter essential program requirements.

The college considers requests for course substitutions or waivers according to procedures outlined in the Policies and Procedures Regarding Reasonable Accommodations for Students with Disabilities Under 504-ADA. The procedure is located in the Downtown Campus Disability Support Services office, Room A211.

Eligibility

It is the student's responsibility to identify him or herself as having a documented disability and seek assistance from Disability Support Services (DSS). Bates Technical College recognizes that traditional methods, programs, and services may need to be altered to ensure full accessibility to qualified persons with disabilities.

A qualified student is one who:

Has a physical, mental or sensory impairment that substantially limits one or more of her or his major life activities. Major life activity is defined as the ability to perform functions such as self-care, manual test taking, walking, seeing, hearing, speaking, breathing, learning, or working, and is either permanent or temporary; Has a record of such an impairment or; Is perceived to have such an impairment, or a student who has an abnormal condition that is medically cognizable or diagnosable.

Equal Access

No qualified individual with a disability shall, because of such disability, be excluded from the participation in, or be denied the benefits of the services, programs or activities of any public entity, or be subject to discrimination by any such entity. Americans with Disabilities Act, 1990 (Section 202).

No otherwise qualified handicapped person shall, on the basis of a handicap, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity which receives or benefits from Federal financial assistance.

Rehabilitation Act of Congress, 1973; Title V (Section 504).

Obtaining Services

We are committed to helping you succeed. In order to receive and retain reasonable accommodations, you must:

- Make an appointment with Disability Support Services at 253.680.7012, Relay Services 711
- Bring formal written documentation of your disability to the first meeting with Disability Support Services
- Documentation must be from a licensed professional
- Request the accommodation(s) you desire
- Request services early for timely accommodations (preferably six weeks before starting classes) When your eligibility is established, it is your responsibility to present the Letter of Accommodation to all instructors at the beginning of each quarter.

Discuss your accommodations with your instructor at the beginning of your class or program to ensure successful program completion.

Student Grievance

A student with disabilities who may have a grievance with Bates Technical College staff or faculty regarding disability-related issues should contact DSS to obtain a copy of the grievance procedure.

Student Rights

Students have the right to services and reasonable accommodations that allow them to compete on an equal basis when they meet the basic requirement to perform the activities of the program.

Enrollment and Attendance Policies

Absence for Short-Term Military Assignments

Per RCW 28B.10.270, students called to active duty for a period of 30 days or less may not be penalized for missed class time and must be provided the opportunity to make up work, labs, and exams within a reasonable period of time and without prejudice after they return. The student may not be dropped for non-attendance and no grade for the student's work may be issued until the student has been given the opportunity to make up the work and/or participation. Written verification that the person is being, or has been, ordered to service must be provided to the college prior to leaving for active duty. If the student is ordered to active duty for more than 30 days is entitled to withdraw from any courses with tuition and fees credited back to their account or receive an incomplete grade and allowed to complete the course upon release from active duty under the college incomplete course procedures.

Allied Health Students

Students applying for entrance into the Dental Assisting, Dental Lab Technician, Denturist, Occupational Therapy Assistant, and Practical Nurse programs are required to submit official transcripts of any college-level credit they wish to transfer to Bates, to the Registration Office. The form, Request for Credit Evaluation, will need to be submitted with the official transcripts. The Request for Credit Evaluation form can be found on our College's website or at the Registration Office.

Some Allied Health programs have specific start dates. Contact the Admissions Office for more information.

Attendance Policy

The college retains the right to fill a vacant seat during the first 10 days from the beginning of each quarter. Consequently, if a student fails to attend class during the first three days of the quarter, the faculty member may withdraw that student in order to allow another student to enroll. Bates has a goal of 100 percent attendance, the standard for employees in industry, and students are expected to attend class each time it meets. Individual faculty members will state class attendance expectations in the course syllabi.

- If a student has a break in enrollment for a career education program, upon their return, they must complete the requirements for the most recent curriculum.
- If there is a curriculum change to a program while a student is continuously enrolled, it is the student's choice as to whether they complete the new curriculum or the curriculum they started under.

Enrollment/Registration Policy

Students must enroll by the tenth day of for these quarters: Fall, Winter, Spring. For Summer quarter, enrollment must be recorded by the 8th day. Persons over 16 may enroll subject to the conditions of Bates' enrollment/registration policy. If you are undecided about your career pathway, consider attending a Career Education Information Session or contact the Admissions Office. More information: 253.680.7002, www.BatesTech.edu/Information-Sessions.

Full-time Students

To be considered full-time, a student must enroll for a minimum of 12 credits. This can be a combination of career training course work and general education classes.

Student Absence for Faith or Conscience

Students are entitled up to two excused absences for reasons of faith or conscience or for organized activities conducted under the auspices of a religious denomination, church, or religious organization during each calendar year.

- Students' grades may not be adversely impacted by absences authorized under this policy.
- Students must make up the work missed during the absence.
- Students must notify the college in writing within the first two weeks of the course in which they are requesting an absence under this policy.
- Each day taken will be counted as a full day and cannot be divided and taken incrementally over multiple days.

The college shall make no judgement about the legitimacy of reasons of faith or conscience.

Withdrawals

Students must self-withdraw from their classes. Withdrawals can be completed in the ctcLink Student Homepage or in the Registration Office. Students unable to present themselves to the Registration Office must submit their withdrawal in writing. Students can send an email from their Bates email address. The tuition refund policy will be effective when the withdrawal paperwork is received by the Registration Office.

Extended Learning and other programs

Apprenticeship Committees

www.BatesTech.edu/Apprenticeship

Aerospace Joint Apprenticeship Committee (AJAC) Apprenticeship Committee

Industrial Maintenance Mechanic Apprenticeship

Operating Engineers Regional Training JATC

Pacific NW Iron Workers & Employers Local #86 Apprenticeship Committee

Pierce County Meat Cutters Apprenticeship Committee

Washington State Fire Fighters Joint Apprenticeship & Training Committee

Western Washington Sheet Metal JATC

Western Washington Operating Engineers Facilities Custodial Services Apprenticeship Committee

Western Washington Stationary Engineers Apprenticeship Committee

Articulation Agreements with Colleges and Universities

Bates has agreements with several public and private colleges and universities to facilitate the transfer of credits and entry to educational options after earning a Bates credential.

Beyond the formalized articulation agreements, colleges have reciprocal transfer agreements and understandings relating to the transfer of courses.

General education courses meeting guidelines of the lntercollege Relations Commission are identified as 'generally transferable' in course descriptions. To determine if Bates credits are transferable to a specific college or university, contact the registrar at the receiving institution.

Articulation Agreements with Industry

Bates Technical College has a nearly 80-year history providing Washington state-approved apprenticeship training programs. Pre-apprenticeship career education programs at Bates include:

- Carpentry
- Machinist
- Sheet Metal Technology
- Welding

Bates offers a degree in Apprenticeship Studies. For More information: 253.680.7402 www.BatesTech.edu/Apprenticeship.

Articulation Agreements with K-12

Bates works with K-12 school districts and other colleges and universities to provide additional educational options for students. K-12 articulation agreements are managed through the Pierce County Careers Connection.

These agreements provide students the opportunity to earn credit in the college's career education programs for Career and Technical Education programs at their high school. Students should inquire at their district high school about which Bates options are available.

Child Studies

Bates' Child Studies department offers job training and extended learning programs emphasizing knowledge, skills, and the understanding of values, attitudes, and standards that are important to specific careers. For more information, please call 253.680.7500.

Child Development/Early Education Staff Training Program

This program is a cooperative effort between approximately 30 licensed childcare centers and Bates Technical College. The program offers affiliation opportunities for licensed childcare centers in the greater Pierce County area to receive on-site technical training, formal classes and support in early childhood education.

Cooperative Preschools

Parents participate in a hands-on, interactive parent/child preschool classroom, learning the newest developmentally

appropriate early childhood education and guidance techniques to meet the developmental needs of children aged two through five years. Experienced, trained teachers supervise in a safe and secure preschool environment.

College faculty provide training, assistance, and support. A trained early childhood educator assists children in activities and provides safety and supervision. Professional college staff also provide parenting education classes, teacher and preschool board leadership training, and non-profit business assistance and support. For more information: 253.680.7500.

Early Education Resource Center

A resource center for teachers and parents is located at Bates South Campus to help students, teachers, parents, and childcare staff facilitate learning for infants, toddlers, preschoolers, and school-aged children.

Ongoing displays and activities include music, language, math, social skills, cognitive development skills, science, games, and rule development. A library of resource books, videos, curriculum kits for teachers, and take-home activities is available. For more information: 253.680.7500.

Washington State Training and Registry System (STARS)

STARS is based on Washington state WAC requirements for licensed child care centers. For More information: 253.680.7500.

Continuing Education

www.BatesTech.edu/ContinuingEd

Continuing education courses for professional development and personal enrichment are student supported and may include computer training, health and medical training, and training in construction and skilled trades areas. Generally held in the evenings and on weekends, the courses have quarterly start and end dates and include for-credit and not-for-credit courses. A schedule of continuing education courses is available online at www.BatesTech.edu/ContinuingEd. Registration is available online, by phone, or in person at the South Campus. For more information: 253.680.7402.

Career & Technical Education

Teacher Preparation

Bates Technical College offers training to prepare individuals with business and industry experience to teach Career & Technical Education (CTE) courses at the secondary level, grades 7-12 in Washington State. The Bates CTE Teacher Preparation program is approved by the Washington State Professional Educator Standards Board (PESB) for the Plan 2 Business and Industry Route. Our quality competency-based training is flexible. Design a plan to meet your individual needs.

Courses are offered online quarterly. Select courses have synchronous Zoom meetings scheduled on weeknights and weekends, and the accelerated summer weekday offering allows you to complete a substantial portion of your coursework during the summer.

For more information,
visit www.BatesTech.edu/TeacherPrep

Email CTEteacher@batestech.edu / call 253.680.7467 to learn more about the program, or for a transcript review.

Extended Learning

Extended learning courses are intended to be short-term training opportunities. The courses have specific start and end dates and are usually held evenings and weekends.

Bates also offers contract-funded or student-funded, non-credit extended learning courses to earn Continuing Education Units (CEUs). Ten clock-hours of instruction equals one CEU.

Documentation of coursework may be provided to the student in letter or certificate form, listing the student's name, course of study, and the number of CEUs awarded. After a student satisfactorily completes a designated element, a card is given to the student documenting course completion. For more information: 253.680.7000.

Distance Learning

Bates offers a variety of distance learning options. The primary options are:

- Web-enhanced, a fully face-to-face class where some class resources and coursework will be hosted online
- Hybrid, a class with a combination of face-to-face and online coursework
- Online-only, where all instruction and coursework

occurs online

For more information, please contact the Online Learning Center at 253.680.7233 or OLC@batestech.edu.

General Educational Development (GED)

https://www.batestech.edu/career-pathways/high-school/

Enroll in math, science, social studies and literacy courses to prepare for GED testing. Free GED practice testing is available to enrolled students.

Industry Partnerships and Academies

In many career education programs, full circle partnerships exist between Bates and industry. As new technologies and equipment are developed, they may be tested at Bates or provided to Bates for industry and student training. In some partnerships, industry provides specialized training according to specific hiring requirements. Students who meet those qualifications may apply for job openings as they occur and are often considered for internships (work-based learning opportunities).

AWS Academy (Amazon Web Services)
Empowering higher education institutions to prepare students for industry-recognized certifications and careers in the cloud.

Cisco Networking Academy
Transforms the lives of learners, educators and communities through the power of technology, education and career opportunities. Available to anyone, anywhere.

Manufacturing Academy

The Manufacturing Academy in partnership with AJAC Advanced Manufacturing Apprenticeships, provides students with the skills and knowledge necessary to secure entry-level employment in the advanced manufacturing field. So that students gain industry-relevant knowledge, curriculum content is aligned with state standards for manufacturing. While participating in the Manufacturing Academy, will be involved in structured job search activities and exploring career pathways. The goal of this pre-apprenticeship program is to build a workforce to fill industry need, and to provide long-term employment and career ladders for graduates within that industry.

Upon completion, students will have the basic foundational skills to find gainful entry-level employment and may meet the minimum qualifications to pursue additional career pathways in advanced manufacturing through AJAC's portfolio of apprenticeship programs. The Academy provides students with a pathway to enter into an apprenticeship or continue their education with Bates. Credits earned in this program transfer into the Machinist program at Bates Technical College.

Veterans should contact the certifying official of their apprenticeship, union, or trade organization to see if they are eligible to use GI Bill® benefits.

Professional Improvement Units

Through staff development activities, Bates offers a variety of non-credit staff and instructor improvement courses. Staff and student participation in these courses may be recognized with Professional Improvement Units (PlUs) based on a standardized ratio: 10 clock-hours of instruction equals one PIU. Documentation of student participation may be made in letter or certificate form and will list the student's name, course of study, and the number of PlUs awarded. Documentation provided to the student must be signed by the program administrator/manager.

Workforce Contract Training

Bates Technical College provides contract training for industry-specific training. For more information: 253.680.7467 or 253.680.7404.

Financial Aid

www.BatesTech.edu/FinancialAid

A student may be eligible for financial aid if they are:

- Enrolled in a Title IV eligible degree or certificate offered by Bates Technical College.
- A U.S. citizen or eligible non-citizen (federal aid only).
- WASFA eligible students (undocumented) must also be a WA resident as determined by Bates' Residency Officer.
- Making satisfactory progress as defined by the Financial Aid Office Satisfactory Academic Progress (SAP) Policy.
- For more information about our SAP policy visit https://www.batestech.edu/sap-policy/.
- Not in default on any student loans or in repayment of federal aid reported by the National Student Loan Data System (NSLDS).
- Have a high school diploma or its equivalent, GED, or meet the Ability to Benefit eligibility requirements.

These funds can come from a variety of sources such as the federal government, the state government, private sources and from the school itself. Financial aid may be awarded in the form of a grant or scholarship (money that does not have to be repaid); a loan (money which must be repaid), or Work-Study employment (students work and earn the award in the form of a paycheck). The type of aid a student is eligible for is determined by the federal or state methodology when a student completes their FAFSA or WASFA. Students will receive their Student Aid Index (SAI) and be assigned a budget and the “need” for educational expenses. All students have the right to accept or decline the financial aid awards. However, if a student chooses to decline an award, it does not guarantee the award will be replaced with other sources of funding.

How to Apply

Students must complete and submit the Free Application for Federal Student Aid (FAFSA) or the Washington Application for State Financial Aid (WASFA).

The FAFSA can be completed at https://studentaid.gov/h/apply-for-aid/fafsa. A student should complete the WASFA if they are undocumented or do not qualify for federal financial aid because of their immigration status. The WASFA can be completed at https://wsac.wa.gov/wasfa.

Eligibility Requirements

Currently enrolled and prospective students interested in applying for Federal aid must: Be a U.S. citizen, permanent resident or eligible noncitizen. Be enrolled or intending to enroll on at least a halftime basis for student loan programs.

NOTE: The PELL Grant may be available to students enrolled less than half-time. Be enrolled in a financial aid eligible program of study leading to a degree or eligible certificate offered by Bates Technical College.

NOTE: Auditing classes are not paid for by financial aid. Be in "satisfactory academic standing" according to the college's academic probation policy. Be maintaining "satisfactory academic progress" according to the college's Title IV Student Financial Assistance Satisfactory Academic Progress Policy.

Not be in default on any Stafford, Perkins, HEAL or loans, and not owe a refund on any PELL, SEOG, or SSIG received at Bates or any previously attended school. Student must have a high school diploma, GED, high school equivalency, or meet Ability to Benefit criteria.

Types of Financial Aid

Federal Pell Grant - Awards generally range from $0-$7,395 per academic year. Students may be enrolled less than half-time.

Federal Work-Study Program (FWSP) - Students may work at designated sites on during the academic year. Maximum amount that can be earned is $10,920 per academic year. Students must be enrolled at least half-time without exceeding unmet need and continue to meet all work-study program requirements.

Direct Stafford Loan - Requires a student loan application that can found at

https://www.batestech.edu/financial-aid-forms/.

Students are required to complete a Master Promissory Note and Entrance Counseling at www.studentaid.gov. For current loan limits, see the Financial Aid Office. Students must maintain half-time enrollment. There is no filing deadline for the student loan, but it must be processed prior to the end of the quarter for which you have requested the loan.

Student loan application must be received two weeks prior to the end of the quarter you are requesting the loan to ensure the loan can be processed. There are two types of Direct Stafford Loans:

- **Subsidized Loan** - The interest on the loan is paid for by the federal government while a student is in school. The student makes no interest or principle payments until six months after graduation or dropping below half-time status.
- **Unsubsidized Loan** - Interest accrues after loan is disbursed. Students can pay or have the interest capitalized. Principle payments are still deferred until six months after graduation or dropping below half-time.

State Grant and Special Programs - The Washington Student Achievement Council (WSAC) administers state financial aid including the Washington College Grant , the College Bound Scholarship, and the Washington Application for State Financial Aid, or WASFA, for undocumented individuals.

Veterans Benefits - GI Bill® benefits help students pay for college, graduate school and training programs. Since 1944, the GI Bill has helped qualified Veterans and their family members get money to help subsidize the costs for school or training. Learn more about GI Bill benefits below—and how to apply for them https://www.va.gov/education/about-gi-billbenefits/.

Opportunity Grant - Opportunity Grant is a funding program specifically for low-income students who are Washington state residents and enrolled in an Opportunity Grant eligible program of study (see list below). The program is designed to help students overcome financial barriers while they pursue an education. The program is voluntary, and allows participants to get assistance with school expenses for up to 45 credits of tuition and no longer than three years from the initial receipt of grant funds. For more information contact the Opportunity Grant Specialist at 253.680.7244 or opportunitygrant@batestech.edu.

Eligibility requirements:

- Must be low-income based on FAFSA and current family income is at or below 200 percent of the Federal Poverty Level (see chart)
- Wash. state resident – for at least one year
- In an Opportunity Grant eligible program In addition, students may NOT receive a second quarter of Opportunity Grant funding if they have not completed the FAFSA-based aid process. For more information, contact: Opportunity Grant Specialist 253.680.7244

WorkFirst - If students are currently receiving Temporary Assistance for Needy Families (TANF) and participate in Washington State's WorkFirst program, they may qualify for WorkFirst financial assistance to complete their education at Bates. WorkFirst is designed to fill in gaps that financial aid does not cover. The college will check a student's financial aid account before proceeding with a request for assistance. Participant must track and report weekly attendance to maintain eligibility. More information: 253.680.7347

Worker Retraining - This funding program is specifically for unemployed or under-employed dislocated (laid off) workers, displaced homemakers, transitioning and military veterans, and the formerly self-employed whose qualifying event* took place within the previous 48months from the time of application for the program. The program is designed to help students overcome financial barriers while they pursue an education. The program is voluntary and allows participants to obtain assistance with education related expenses. Worker Retraining is designed to fill the gaps that FAFSA-based financial aid does not cover. The college will check a student's financial aid account before proceeding with a request for assistance. More information: 253.680.7127 or retraining@batestech.edu.

*Qualifying event: the event that causes an applicant to qualify, such as a layoff, divorce/separation, military separation, or loss of a business.

*Qualifying event: the event that causes an applicant to qualify, such as a layoff, divorce/separation, military separation or loss of a business.

Basic Food and Employment Training (BFET) - Students may qualify for this benefit if they receive, or are eligible to receive, federal food assistance. Students who also receive TANF are not eligible. Students must check in monthly to maintain eligibility.

Students may receive assistance for tuition, fees, textbooks, tools and supplies, and emergency costs. Students may also qualify for childcare assistance through DSHS Working Connections. BFET assistance works with FAFSA based Financial Aid, and students must make a formal request for BFET assistance. BFET is designed to fill financial gaps that financial aid does not cover. Therefore, the BFET Compliance Specialist will check a student's financial aid account before proceeding with a request for assistance. More information: 253.680.7286.

Early Achievers Grant

This is a funding program to help employed childcare providers and early learning educators compete certificates and associate degrees in Early Childhood Education. For more information contact Early Achiever Grant Program Contact: 253.680,7027 or eag@batestech.edu

BankMobile

The college has partnered with BankMobile to facilitate financial aid refunds and reimbursements. Learn more: www.BatesTech.edu/FinancialAid

Withdrawals

Students must self-withdraw in the Registration Office. Withdrawals may impact financial aid eligibility. Contact the Financial Aid office prior to withdrawing from a course. Self-withdrawal forms can be found at my.batestech.edu/batesforms.

Return of Title IV Financial Aid

Students who are awarded Title IV aid and withdraw from courses are subject to the Return of Title IV regulations. The regulations require the college to evaluate the time the student was enrolled, using the Return of Title IV calculation. Please refer to the student handbook at my.batestech.edu for a full description of Return of Title IV Funds and/or inquire at the Financial Aid Office.

Grading System

Grading Procedures

The following grading practices support academic freedom and provide a uniform and fair grading system for students and faculty.

Instructors are empowered to select criteria used to grade the courses they teach, and how those criteria will be weighted. Elements that contribute to grades can be as broad as needed and may include various methods of measuring student learning and achievement. For example: a possible combination of test scores, assignments, evaluation of lab/shop work, attendance, workplace behaviors evaluation, and other elements may be used.

At the beginning of each course students will be provided with a syllabus detailing what will be learned in the course and how outcomes will be measured and graded. Grading information will explain how the various factors will be weighted and how they contribute to the final grade.

Reporting

Numerical grades earned by students will be reported for each course at the end of the quarter using a scale from 4.0-1.0, or 0.0, and will apply to grade point average (GPA) calculations. Numerical grades may be considered equivalent to letter grades as follows: Numerical Grades Letter

4.0 A
3.9-3.7 A-
3.6-3.3 B+
3.2-3.0 B
2.9-2.7 B-
2.6-2.3 C+
2.2-2.0 C
1.9-1.7 C-
1.6-1.3 D+
1.2-1.0 D
0.0 N/C

N/C: No Credit

No credit for course (factored in GPA)

S: Satisfactory

Satisfactory completion of a pass/fail course (not factored in GPA)

U: Unsatisfactory

Unsatisfactory completion of a pass/fail course (not factored in GPA)

W: Withdrawal

Withdrawal from course (not factored in GPA)

Students will be allowed to withdraw from courses in accordance with college procedures. To withdraw and receive a “W” on your transcript, students must complete the withdrawal request by the 40th instructional day of the quarter.

IC: Incomplete

An incomplete (IC) may be granted for a course in which the student enrolled but did not complete all work required to earn a numeric grade due to unusual or emergency circumstances beyond the student's control.

An IC is not a student right, but is an instructor granted extension of the time needed to finish and submit required work the student was unable to complete during the regular course time frame

The student need not re-enroll nor pay additional tuition in the following quarter for the individual course in which an IC is granted. An instructor may give an IC to a student provided there is a contract in place between the student and the instructor specifying:

- What work must be completed
- By what date the work will be completed, what the final grade for the course will be if the student does not complete all required work by the required date. If the student fails to complete the required work by the deadline set by the instructor (in no case beyond the end of the subsequent quarter), the IC will automatically change to the grade designated on the contract.

*If you receive financial aid, please check with the Financial Aid Office if you receive incomplete (IC), zeros (NC), or withdrawals (W}, as these grades can negatively impact your financial aid eligibility.

Program Curriculum

The program descriptions in this catalog are provided for

reference and list all curricula that exist for individual programs. Selection of specific elective classes will depend on the area(s) of program emphasis a student wishes to pursue; therefore, students may not need to complete every class segment that is listed in the catalog.

Students should consult with their career advisors and faculty to determine the most appropriate and/or required classes for their desired program path and completion credential.

Program Completion Times

Completion time ranges listed for each career education program in this catalog are averages based on the schedule of when courses will be offered and the number of credits needed to complete the required curriculum for that program. Program completion rates may vary from those listed based on individual student skills, aptitudes, and academic progress.

Academic Progress (Academic Standing)

Academic Deficiency Policy

Please note that Financial Aid has separate policies and procedures pertaining to Satisfactory Academic Progress (SAP). Students may be subject to these policies individually or concurrently. Students are required to have a 2.0 cumulative GPA in order to be awarded credentials at Bates Technical College.

Academic Warning

Any student who receives less than a 2.0 quarterly GPA will be notified at the end of a given quarter.

Notification of academic warning (1) will be sent to the student by the tenth instructional day of the succeeding second quarter. These students must achieve a 2.0 in the immediately succeeding quarter.

Students who achieve a 2.0 or greater quarterly GPA in the succeeding quarter will be removed from academic warning status. Students who do not achieve a quarterly 2.0 GPA in the immediately succeeding quarter will be moved to academic probation.

Academic Probation

Students who receive less than a 2.0 for two consecutive quarters will immediately be placed on academic probation. Notification of academic probation (2) will be sent to the student by the tenth instructional day of the succeeding third quarter.

Students who receive a quarterly GPA of 2.0 or greater in the immediately succeeding quarter will be removed from probation. Students should work closely with advising and faculty in remedying their cumulative GPA to 2.0 or above. Students who do not achieve a quarterly 2.0 GPA in the immediately succeeding quarter will be moved to academic suspension.

Academic Suspension

Students who receive less than a 2.0 for three consecutive quarters will immediately be placed on academic suspension for the following quarter.

Notification of academic suspension (3) will be sent to the student by the tenth instructional day in the succeeding fourth quarter. A student who has already begun classes will be administratively withdrawn with all tuition and fees refunded.

Re-entry after Academic Suspension

After one quarter of suspension, students may petition to reenter. Students must first meet with a career advisors for a readiness assessment. Career advisors may direct students to do the following things, but are not limited to the list below:

- Attend an academic intervention session
- Meet with the Dean of Student Services
- Obtain a skills assessment from an instructor

Students who reenter after academic suspension will return on academic probation. Students must receive at least 2.0 in the quarter they return or they will return to Academic Suspension. Students reentering from a second Academic Suspension must meet with the Dean of Student Services.

Academic Appeal

Students may follow the process laid out in the student handbook if they wish to appeal their academic standing. The handbook is located on MyBates at my.batestech.edu or https://www.batestech.edu/student-resources/

International Student Information

International Students

BatesTech.edu/international-students

Bates Technical College is proud to promote international education and training within the college, the community and worldwide.

Faculty and staff assist students throughout their educational experience. Bates offers international students superior academic opportunities, unique cultural backgrounds, and a friendly and active campus environment.

International Student Services

There is no Proof of English proficiency and minimum GPA requirement for admission to Bates Technical College. All students are required to take placement tests upon arrival.

How to Apply

1. Submit the International Student Application with the non-refundable $50 USD application fee ($100 for Practical Nurse).
2. Copy of passport photo page.
3. Submit a bank statement and the Financial Resources Information Form.
4. Complete the International Student Health Insurance Form.
5. If you are currently in active status at another U.S. school, submit the Transfer Release Form.
6. If you will be bringing a spouse or children with you, submit the Dependent Information Form.

International Credit Transfer

Students who wish to transfer credits from colleges and universities located outside of the United States will need to have their transcripts evaluated by an independent International credentials evaluation agency. For more information, view our International Credits guide.

Application Review

After Bates has reviewed your completed application, we will send you an I-20 form. Your next step is to apply for your U.S. Visa.

Process for Application

Email: Send the completed documents to ysun@batestech.edu.
Fax: Fax your complete application to 253.680.7201 (US country code is 011)
Mail: Mail application materials to:

Bates Technical College International Programs
1101 S. Yakima Ave.
Tacoma, WA 98405 USA

Tuition and Expenses for International Students

The cost to attend Bates Technical College, including books, supplies, tuition, and living expenses is approximately $19,100 (US) annual expenses. This does not include the cost of travel to or from the United States. Please refer to the Tuition and Fees page for specific details.

Financial Responsibility

International student applicants supported by personal funds must return the Financial Resources Information document, found in the international student application, to the college with the appropriate signatures. Applicants supported by family,

government, or agency funds must also obtain the signature of the party providing support.

International Contract Training

Bates Technical College provides international and distance learning contract training for industry specific training and/or for international educational partners.

International Referral Agencies

Bates Technical College collaborates with recruitment partners to develop and retain a diverse international student population. Prospective international referral agencies are required to complete an online application and submit references.

To become a Bates partner, send request to ysun@batestech.edu.

Student Rights and Responsibilities

WAC Student Rights and Responsibilities
Chapter 495A-121

Bates Technical College is a two-year public institution of higher education. The college is maintained by the State of Washington for the provision of programs of instruction in higher education and related community services. Broadly stated, the purpose of the college is to provide opportunities for all who desire to pursue educational goals. Like any other institution having its own special purposes, the college must maintain conditions conducive to the effective performance of its functions.

To implement this objective, it is necessary to ensure that an environment is created wherein all students may progress in accordance with their capability and intensity of interest. The responsibility to create and maintain such an environment is shared by all members of the college community: students, faculty, staff and administration.

Upon registration, all students will be directed to an online copy of the Bates Technical College Student Handbook which details Student Rights & Responsibilities and includes chapters of the Washington Administrative Code (WAC) pertaining to student conduct.

Conduct codes are subject to change. The most current code provisions are in the Washington State Register and **available here**.

Family Educational Rights and Privacy Act (FERPA): Confidentiality of Student Records

In compliance with the Family Educational Rights and Privacy Act (FERPA) and the Washington Administrative Code, the following information is designated as directory information: student's name; program in which the student is registered; dates of attendance; date and place of birth; degrees and awards received; and most recent previous education agency or institution attended. Only designated members of the registration staff may disclose directory information.

The FERPA affords students certain rights with respect to their educational records:

- The right to inspect and review the student's education records within 45 days of the day the college receives a request for access;
- The right to request the amendment of information contained in the student's education records that the student believes is inaccurate or misleading;
- The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent;
- The right to file a complaint with the U.S. Department of Education concerning alleged failures of the college to comply with the requirements of FERPA.

Directory information may be released by Bates Technical College without parental or student consent unless parents or adult students 18 years of age or older specifically request that such information not be released.

Bates Technical College does not release directory information for commercial purposes. Parents of students under age 18 or adult students currently attending Bates should complete a form in the registration office if they do not wish to have directory information released.

Student Right-To-Know

The Federal Student Right-To-Know and Campus Security Act requires institutions of higher education to report the percentages of completion and graduation rates for students enrolled full time, first time entering college, and degree or certificate students. Title 11 of this law, the Crime Awareness and Campus Security Act of 1990, requires publication of campus crime statistics and campus security policies. The third part of the law requires disclosure of student loan default rates.

These and other important, relevant statistics for each program, each campus, and the entire college can be viewed on the following websites: nces.ed.gov/collegenavigator (completion and graduate rates), ope.ed.gov/security (campus security data), and www.ed.gov/about/offices/list/fsa (federal student aid).

Copies of these reports are also available in student services and the Registration Office. These reports reflect past student participation, completion rates, and placement wages ninety days after completion.

Policy Prohibiting Hazing

Hazing is prohibited at Bates. Consistent with state law, hazing is defined as any method of initiation into a student organization or group that causes or is likely to cause bodily danger or physical, mental, or emotional harm.

Examples of prohibited activities, regardless of location, include but are not limited to: forced consumption of alcohol or drugs, excessive exercise, activities that may threaten an individual's health, or compelling individuals to engage in activities which violate Bates' Student Code of Rights and Responsibilities.

Sexual Harassment Policy

All students must be allowed to learn in an environment free from sexual harassment. Sexual harassment may include unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature carried out by someone in the workplace or educational setting. Such behavior may offend the recipient, cause discomfort or humiliation, and interfere with job or school performance. It is Bates' policy that sexual harassment is unacceptable conduct and will not be tolerated.

Anyone violating this policy is subject to disciplinary procedures. Bates is committed to communicating this policy to all employees and students, and to investigating and resolving promptly any complaints of sexual harassment. If a student feels their rights have been violated, they should contact Student Services or Human Resources. For additional information, please visit the Title IX webpage.

Student Services

Associated Student Government (ASG)

Administration and faculty strongly support the ASG, help in the promotion and development of student activities, and provide for direct student representation in establishing college polices. The ASG is responsible for developing the student activity budgets and for representing student interests on college committees and councils.

ASG officers hold regular meetings; host a monthly general assembly; meet with the college president regularly; and the ASG president provides monthly reports to the College's Board of Trustees. All students are encouraged to attend monthly General Assembly meetings which rotate campuses. In addition students can enjoy numerous student life events throughout the year.

Campus Life and Activities Center

Located at the Downtown Campus, Room C301, Campus Life and Activities (CLA) offers meeting spaces, computer workstations, printing, conversation corner, study room, microwaves, student resource center, games and activities. In addition, CLA manages the college's chapter of the Phi Theta Kappa Honor Society (Beta Upsilon Omicron), college-level SkillsUSA, student-led clubs, and the department is responsible for developing student life activities and an inclusive campus environment. The CLA is a safe space where discussions exist in an atmosphere of respect and trust.

Barber Shop

Students have access to the free services of a 10-chair barber shop. All work is performed by students in the Barber program. The Barber Shop is open when the college is in session.

Campus Store and Online Bookstore

The college currently operates one physical bookstore located at South Campus in building A. The store carries a variety of school supplies, and official Bates imprinted items such as sweatshirts, water bottles, notepads and more. Operating hours can be found on the webpage.

Please note, all books are now purchased online through our virtual bookstore: https://bncvirtual.com/bates. To access a list of required books, supplies, and equipment, please check with your instructor.

Career Education Information Sessions and Community Outreach

General Information Sessions

These sessions will [provide the answers to questions regarding the Steps to Enrollment, admissions, academic programs, financial aid and more.

Book here: General Information Sessions

One on One Sessions

Our Enrollment staff will gladly talk to potential students one-on-one. Meet with our Enrollment staff to answer your questions on career programs and assist you with the enrollment process. (Languages: Spanish and English)

Book here: One on One Sessions

VIP Pass

With Bates VIP PASS any prospective high school or adult student can learn about a program at any of our three vibrant campuses. You'll see things in the College's educational environment that mimics a real workplace from instructors who are experts in the field. Meet with other students who have similar interest and inspiration.

Book here: VIP PASS or contact 253-680-7002

Community Outreach

Bates Technical College routinely reaches out to local and regional communities as well as community partners to share educational opportunities. We visit schools, organizations, special interest events to provide Career Path options and an overview of the uniqueness of a Technical College experience at Bates.

Book here: Presentation for School or Organization

Child Care

Bates' Early Learning Center is available to students and staff, and includes an Early Childhood Education and Assistance Program (ECEAP) preschool and Early Head Start for qualifying infants and toddlers. The center serves

one-month olds through pre-kindergarten.

The center's hours are generally 6:30 a.m.-5 p.m., Monday through Friday, but do change based on the college student calendar.

Several non-college child care centers are close to Bates. Financial support for child care is available for students who qualify through other college programs. For more information, call 253.680.7384 or 253.680.7320.

Early Childhood Education and Assistance Program (ECEAP)

The Early Childhood Education and Assistance Program (ECEAP) is incorporated into the child care center at Bates and in several sites throughout Pierce County. ECEAP provides additional services for young children, including health screening, developmental screening, and help with fees. The program is for families that qualify due to limited income. For more information: 253.680.7384 or 253.680.7320.

Effective Parenting Courses

The research-based and nationally acclaimed Effective Parenting with Positive Discipline courses help build positive parenting skills that include winning cooperation, building relationships, and reducing struggles. For More information: 253.680.7500.

Community Health Clinics

www.BatesTech.edu/CommunityClinics

The college's currently has a Denturist Clinic that serves as a hands-on learning experience for students, while providing low cost services to the community. To make an appointment call 253.680.7314.

Counseling Center

A licensed mental health professional provides counseling services to current students. Consultation and referrals are available to faculty and staff with student related mental health concerns. Students can call 253.680.7006 to schedule an appointment. For drop-in help, students can check with the front desk at the South and Downtown Campuses. In an emergency, call 911 or the Pierce County Crisis Line at 800.576.7764.

Drug-Free Environment

It is the intent of the college to provide a drug free and secure work and learning environment and to comply with the Federal Drug Free Workplace Act of 1988 and the Drug Free Schools and Communities Act of 1986 (Public Law 99-570, Title IV, Sub-Title B) and its amendment of 1989 (Public Law 101-226).

Unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in and on college-owned or controlled property. The use of alcohol while on college-owned or controlled property is also prohibited, except when authorized in writing by the president for special functions.

Educational Opportunity Center

EOC provides free educational support for adults in the following areas: career advising and exploration, assistance with financial aid forms and college applications, and student loan default. The EOC at Bates is located in the Financial Aid office, Downtown Campus. Call 253.680.7153 for more information.

Email Accounts for Students

Registered career education students at Bates Technical College have a student email account provided as a service from Bates. Go to https://batestech.edu/whats-my-email for login assistance.

Emergency Closures and Delays

In the case of severe weather conditions or college emergencies, information regarding the status of college operations will be located at the following locations:

- Weather and schedule information line: 253.680.7060
- Official college social media channels: Facebook and Twitter
- Puget Sound radio and television stations through the Public Schools Emergency Communication System, and on their website: www.flashalert.net.
- Rave Alert, the college's official emergency notification system used to communicate with students and employees during campus emergencies: www.getrave.com/login/batestechcollege.

Rave Alert is a licensed service purchased by Bates

Technical College to offer the quickest and most reliable, real-time communications possible. This system is used during campus emergencies that pose a safety concern for the community. Learn more at www.BatesTech.edu/EmergencyAlert.

If classes are canceled, students do NOT report to the college. If classes are on a delayed schedule, by 5:30 a.m. on the affected day, the college will announce a specific start time for students to report.

Enrollment and College Calendar

A current college calendar is available online. Students can access the calendar from the homepage, www.BatesTech.edu, or students can go to www.calendarwiz.com/BTC.

2024 - 2025 Calendar

SUMMER QUARTER 2024

May 28	Summer Quarter Tuition due
June 11	First day of the Quarter
June 13	Last day to add a class without Instructor Permission
June 17	Last day for 100% refund
June 21	Last day to add a class with Instructor Permission and last day to drop a class without showing on the Transcript
July 8	Fall Quarter enrollment begins for Veterans
July 9	Fall Quarter enrollment begins for continuing students
July 9	Last day for 50% refund
July 15	Fall Quarter enrollment begins for new students
Aug 2	Last day to withdraw and receive a "W" on Transcript
Aug 14	Summer Quarter ends
Aug 19 - Sep 16	Summer Break

FALL QUARTER 2024

September 10	Fall Quarter Tuition due
September 24	First day of the Quarter
September 26	Last day to add a class without Instructor Permission
September 30	Last day for 100% refund
October 7	Last day to add a class with Instructor Permission and last day to drop a class without showing on the Transcript
October 21	Last day for 50% refund
October 21	Winter Quarter enrollment begins for Veterans
October 22	Winter Quarter enrollment begins for continuing students
October 28	Winter Quarter enrollment begins for new students
November 20	Last day to withdraw and receive a "W" on Transcript
November 27	1/2 day for Students/Faculty
December 6	Fall Quarter ends
Dec 20 - Jan 1	Winter Break

WINTER QUARTER 2025

December 19	Winter Quarter Tuition Due
January 2	First day of the Quarter
January 6	Last day to add a class without Instructor Permission
January 8	Last day for 100% Refund
January 15	Last day to add a class with Instructor Permission and last day to drop class w/o showing on the Transcript
January 30	Last day for 50% refund
February 3	Spring Quarter enrollment begins for Veterans
February 4	Spring Quarter enrollment begins for continuing students
February 10	Spring Quarter enrollment begins for new students
February 28	Last day to withdraw and receive "W" on Transcript
March 14	Winter Quarter Ends
March 24 - 28	Spring Break

SPRING QUARTER 2025

March 17	Spring Quarter Tuition Due
March 31	First day of the Quarter
April 2	Last day to add a class without Instructor Permission
April 4	Last day for 100% Refund
April 11	Last day to add a class with Instructor Permission and last day to drop class w/o showing on Transcript
April 25	Last day for 50% Refund
April 28	Summer Quarter enrollment begins for Veterans
April 29	Summer Quarter enrollment begins for continuing students
May 5	Summer Quarter enrollment begins for new students
May 22	Commencement Ceremony (subject to change)
May 23	½ Day Students/Faculty
May 27	Last day to withdraw and receive a "W" on Transcript
June 10	Spring Quarter Ends
June 23	Summer Quarter Begins

NOTE: Registration office accepts credential applications year-round. We recommend submitting the form in the first two weeks of the quarter you will be completing your credential.

Financial Aid

www.BatesTech.edu/FinancialAid

See the Financial Aid section for financial aid eligibility standards and application procedures. More information: 253.680.7020.

Food/Dining Service

www.BatesTech.edu/Dining

Several food service options varying in offering and price are available. The culinary arts program provides food service at the Downtown Campus cafeteria, and catering and banquet services. Snacks are available in the bookstores; vending machines are located on campus.

Insurance

Enrollment at Bates does not include health or medical insurance. Students who desire medical coverage must purchase their own. Basic Accident Medical Expense, Basic Sickness Medical Expense and Dental and Major Medical Expense programs are available at low cost to Bates students while they are attending the college. The Washington State Health Care Authority provides access to free or low cost health care for Washington State Residents. Students who do not have accident insurance are strongly encouraged to take advantage of this reduced-cost option.

Library

www.BatesTech.edu/Library

The college has libraries at each campus location to serve the diverse information needs of students and employees. *"We've Got What You Need"* is the library's motto.

Your library staff is ready to provide expert assistance with accessible services and resources to create learning, including computer work stations, 11,000 print books, 60,000 eBooks, millions of information sources from academic databases, study rooms, printing, copying, laptops, and other equipment.

A faculty librarian provides Information Literacy support with in-class sessions (by request), course modules in Canvas, and individual consultations.

Call:

253.680.7550 (South Campus Library)

253.680.7220 (Downtown Campus Library)

253.680.7625 (Central Campus Library)

email:
library@batestech.edu

Chat:

www.BatesTech.edu/Librarian-Chat

MyBates

My.BatesTech.edu

MyBates is the student portal that provides access to valuable information and processes vital to students and their success. The portal connects students to links and forms relevant to their education, such as registration, transcript requests, information change, printable college calendar, and offices within Student Services.

New Student Orientation

www.BatesTech.edu/NSO

New Student Orientation is part of the new student experience to ensure all students are set for success and have the tools to navigate Bates Technical College. Students will hear about available resources and support services, meet new students, and receive information about their responsibilities as a student. Students who require accommodation to attend New Student Orientation can reach out to Disability Support Services in advance. Contact: dss@batestech.edu. Additional information about New Student Orientation can also be obtained by emailing a Retention Specialist at srs@batestech.edu.

Parking

www.BatesTech.edu/Parking

It is the responsibility of every Bates student to follow all parking rules and regulations. Check the website for detailed information. Parking permits are required for parking on any school property or in any official parking place and can be obtained at no cost from Campus Public Safety. The parking permit application is available on the website. www.BatesTech.edu/parking

Parking Fines

- No valid permit displayed: $25
- Parking in area not authorized by permit: $25
- Blocking or obstructing traffic or impeding college operations*: $50
- Parking in reserved staff space without authorization: $50

- Handicapped parking violation (RCW 46.19.050): $450
- Parking adjacent to fire hydrant: $25
- Parking in fire lane: $25
- Parking in zone or area marked "no parking": $25
- Traffic Fines*:
  - Speeding: $40-$85
  - Reckless/negligent driving: $40-$100
  - First offense: Parking privileges on all campuses revoked

*Fine to be reduced 50 percent if paid within five days of citation issuance.

Parking Fine Appeal

Parking fines, penalties and permit revocations may be appealed in some cases. A written appeal with specific details should be submitted to the Campus Public Safety Sergeant within five business days of receipt of the citation. If denied, the decision may be appealed to the Director of Safety and Security for review. The decision of the Director of Safety and Security shall be final. Repeated or continued violations may result in having parking privileges revoked and/or vehicle impoundment at the owner's expense.

Refund and Return Policy

Cash refunds are not permitted. Refunds of cash purchases or purchases made by check will be made via a refund check from the college. Credit card purchases are refunded to the credit card. Sales of safety equipment, optional books (including study guides), software, supplies, tools and kits are not returnable. More information: BatesTech.edu/Campus-Stores

Safety

www.BatesTech.edu/Safety

Campus public safety officers provide escorts for students and employees; respond to campus emergencies; patrol buildings, parking areas and campus surroundings; and work with local law enforcement agencies. All personal property should be kept under lock and key. Safety officers are on duty and should be contacted in case of theft or other concerns about property damage or physical endangerment. More information: www.BatesTech.edu/Safety. Downtown, Central/Mohler, South Campus, call 253.680.7111.

Advising and Retention

Career advisors and program instructors advise students. Contact with career advisors and instructors on a continual basis is an important part of student success.

Career advisors may assist with:

- Placement test results and general education placement
- Curriculum requirements
- Program prerequisites
- Enrolling in career education programs and general education courses
- Career education program choices
- College resources, support services
- Degree and certificate requirements
- Information on program costs
- Educational and program planning
- Understanding college policies and procedures

Instructors may assist with:

- Placement test results review
- Curriculum requirements
- Program prerequisites
- Licensing requirements
- Employment opportunities
- Job searches

Retention Specialists

Student Retention Specialists help students identify academic and non-academic needs and connect students with appropriate on-campus and community resources.

Services include:

- Academic Assistance (connecting with tutoring, library resources, navigating campus technology)

- Connecting with community and financial resources
- Transportation (free bus pass, etc.)

Disability Support Services

The primary focus of the Disability Support Services office is to ensure all students have equal and equitable access to an education at Bates Technical College regardless of physical, mental or learning disabilities. If you are a prospective student or returning learner and think you may be eligible for academic accommodations due to an existing disability, contact our Disability Support Services Office at 253.680.7012 or email dss@batestech.edu.

Services include:

- Academic accommodations
- Assistive technology
- Individualized support plans
- Accessibility resources

More information: 253.680.7002.

2024-25 Resident and Non-Resident Tuition

Resident

	Lower Division					Upper Division				
Credits	**Operating Fee**	**Building Fee**	**Maximum S&A Fee**	**Other**	**Tuition and Fees**	**Operating Fee**	**Building Fee**	**Maximum S&A Fee**	**Other**	**Tuition and Fees**
1	$ 99.66	$ 14.81	$ 11.00	$ 22.75	**$ 148.22**	$219.68	$14.81	$11.00	$22.75	**$247.61**
2	$ 199.32	$ 29.62	$ 22.00	$ 45.50	**$ 296.44**	$439.36	$29.62	$22.00	$45.50	**$495.22**
3	$ 298.98	$ 44.43	$ 33.00	$ 68.25	**$ 444.66**	$659.04	$44.43	$33.00	$68.25	**$742.83**
4	$ 398.64	$ 59.24	$ 44.00	$ 91.00	**$ 592.88**	$878.72	$59.24	$44.00	$91.00	**$990.44**
5	$ 498.30	$ 74.05	$ 55.00	$ 113.75	**$ 741.10**	$1,098.40	$74.05	$55.00	$113.75	**$1,238.05**
6	$ 597.96	$ 88.86	$ 66.00	$ 136.50	**$ 889.32**	$1,318.08	$88.86	$66.00	$136.50	**$1,485.66**
7	$ 697.62	$ 103.67	$ 77.00	$ 159.25	**$ 1,037.54**	$1,537.76	$103.67	$77.00	$159.25	**$1,733.27**
8	$ 797.28	$ 118.48	$ 88.00	$ 182.00	**$ 1,185.76**	$1,757.44	$118.48	$88.00	$182.00	**$1,980.88**
9	$ 896.94	$ 133.29	$ 99.00	$ 204.75	**$ 1,333.98**	$1,977.12	$133.29	$99.00	$204.75	**$2,228.49**
10	$ 996.60	$ 148.10	$ 110.00	$ 227.50	**$ 1,482.20**	$2,196.80	$148.10	$110.00	$227.50	**$2,476.10**
11	$ 1,046.75	$ 153.32	$ 121.00	$ 250.25	**$ 1,571.32**	$2,196.80	$153.32	$121.00	$250.25	**$2,488.91**
12	$ 1,096.90	$ 158.54	$ 127.59	$ 273.00	**$ 1,656.03**	$2,196.80	$158.54	$127.59	$273.00	**$2,501.72**
13	$ 1,147.05	$ 163.76	$ 134.18	$ 295.75	**$ 1,740.74**	$2,196.80	$163.76	$134.18	$295.75	**$2,514.53**
14	$ 1,197.20	$ 168.98	$ 140.77	$ 318.50	**$ 1,825.45**	$2,196.80	$168.98	$140.77	$318.50	**$2,527.34**
15	$ 1,247.35	$ 174.20	$ 147.36	$ 341.25	**$ 1,910.16**	$2,196.80	$174.20	$147.36	$341.25	**$2,540.15**
16	$ 1,297.50	$ 179.42	$ 153.95	$ 364.00	**$ 1,994.87**	$2,196.80	$179.42	$153.95	$364.00	**$2,552.96**
17	$ 1,347.65	$ 184.64	$ 160.54	$ 386.75	**$ 2,079.58**	$2,196.80	$184.64	$160.54	$386.75	**$2,565.77**
18	$ 1,397.80	$ 189.86	$ 167.13	$ 409.50	**$ 2,164.29**	$2,196.80	$189.86	$167.13	$409.50	**$2,578.58**
19	$ 1,512.27	$ 189.86	$ 167.13	$ 432.25	**$ 2,301.51**	$2,431.29	$189.86	$167.13	$432.25	**$2,813.07**
20	$ 1,626.74	$ 189.86	$ 167.13	$ 455.00	**$ 2,438.73**	$2,665.78	$189.86	$167.13	$455.00	**$3,047.56**
21	$ 1,741.21	$ 189.86	$ 167.13	$ 477.75	**$ 2,575.95**	$2,900.27	$189.86	$167.13	$477.75	**$3,282.05**
22	$ 1,855.68	$ 189.86	$ 167.13	$ 500.50	**$ 2,713.17**	$3,134.76	$189.86	$167.13	$500.50	**$3,516.54**

23	$ 1,970.15	$ 189.86	$ 167.13	$ 523.25	**$ 2,850.39**	$3,369.25	$189.86	$167.13	$523.25	**$3,751.03**
24	$ 2,084.62	$ 189.86	$ 167.13	$ 546.00	**$ 2,987.61**	$3,603.74	$189.86	$167.13	$546.00	**$3,985.52**
25	$ 2,199.09	$ 189.86	$ 167.13	$ 568.75	**$ 3,124.83**	$3,838.23	$189.86	$167.13	$568.75	**$4,220.01**

Non-Resident

	Lower Division					**Upper Division**				
Credits	**Operating Fee**	**Building Fee**	**Maximum S&A Fee**	**Other**	**Tuition and Fees**	**Operating Fee**	**Building Fee**	**Maximum S&A Fee**	**Other**	**Tuition and Fees**
1	$ 282.00	$ 33.01	$ 11.00	$ 22.75	**$ 328.13**	$ 649.46	$ 33.01	$ 11.00	$ 22.75	**$ 695.59**
2	$ 564.00	$ 66.02	$ 22.00	$ 45.50	**$ 656.26**	$ 1,298.92	$ 66.02	$ 22.00	$ 45.50	**$ 1,391.18**
3	$ 846.00	$ 99.03	$ 33.00	$ 68.25	**$ 984.39**	$ 1,948.38	$ 99.03	$ 33.00	$ 68.25	**$ 2,086.77**
4	$ 1,128.00	$ 132.04	$ 44.00	$ 91.00	**$ 1,312.52**	$ 2,597.84	$ 132.04	$ 44.00	$ 91.00	**$ 2,782.36**
5	$ 1,410.00	$ 165.05	$ 55.00	$ 113.75	**$ 1,640.65**	$ 3,247.30	$ 165.05	$ 55.00	$ 113.75	**$ 3,477.95**
6	$ 1,692.00	$ 198.06	$ 66.00	$ 136.50	**$ 1,968.78**	$ 3,896.76	$ 198.06	$ 66.00	$ 136.50	**$ 4,173.54**
7	$ 1,974.00	$ 231.07	$ 77.00	$ 159.25	**$ 2,296.91**	$ 4,546.22	$ 231.07	$ 77.00	$ 159.25	**$ 4,869.13**
8	$ 2,256.00	$ 264.08	$ 88.00	$ 182.00	**$ 2,625.04**	$ 5,195.68	$ 264.08	$ 88.00	$ 182.00	**$ 5,564.72**
9	$ 2,538.00	$ 297.09	$ 99.00	$ 204.75	**$ 2,953.17**	$ 5,845.14	$ 297.09	$ 99.00	$ 204.75	**$ 6,260.31**
10	$ 2,820.00	$ 330.10	$ 110.00	$ 227.50	**$ 3,281.30**	$ 6,494.60	$ 330.10	$ 110.00	$ 227.50	**$ 6,955.90**
11	$ 2,877.38	$ 336.29	$ 121.00	$ 250.25	**$ 3,352.46**	$ 6,494.60	$ 336.29	$ 121.00	$ 250.25	**$ 6,969.68**
12	$ 2,934.76	$ 342.48	$ 127.59	$ 273.00	**$ 3,423.62**	$ 6,494.60	$ 342.48	$ 127.59	$ 273.00	**$ 6,983.46**
13	$ 2,992.14	$ 348.67	$ 134.18	$ 295.75	**$ 3,494.78**	$ 6,494.60	$ 348.67	$ 134.18	$ 295.75	**$ 6,997.24**
14	$ 3,049.52	$ 354.86	$ 140.77	$ 318.50	**$ 3,565.94**	$ 6,494.60	$ 354.86	$ 140.77	$ 318.50	**$ 7,011.02**
15	$ 3,106.90	$ 361.05	$ 147.36	$ 341.25	**$ 3,637.10**	$ 6,494.60	$ 361.05	$ 147.36	$ 341.25	**$ 7,024.80**
16	$ 3,164.28	$ 367.24	$ 153.95	$ 364.00	**$ 3,708.26**	$ 6,494.60	$ 367.24	$ 153.95	$ 364.00	**$ 7,038.58**
17	$ 3,221.66	$ 373.43	$ 160.54	$ 386.75	**$ 3,779.42**	$ 6,494.60	$ 373.43	$ 160.54	$ 386.75	**$ 7,052.36**
18	$ 3,279.04	$ 379.62	$ 167.13	$ 409.50	**$ 3,850.58**	$ 6,494.60	$ 379.62	$ 167.13	$ 409.50	**$ 7,066.14**
19	$ 3,594.05	$ 379.62	$ 167.13	$ 432.25	**$ 4,165.59**	$ 7,177.07	$ 379.62	$ 167.13	$ 432.25	**$ 7,748.61**
20	$ 3,909.06	$ 379.62	$ 167.13	$ 455.00	**$ 4,480.60**	$ 7,859.54	$ 379.62	$ 167.13	$ 455.00	**$ 8,431.08**
21	$ 4,224.07	$ 379.62	$ 167.13	$ 477.75	**$ 4,795.61**	$ 8,542.01	$ 379.62	$ 167.13	$ 477.75	**$ 9,113.55**

22	$ 4,539.08	$ 379.62	$ 167.13	$ 500.50	**$ 5,110.62**	$ 9,224.48	$ 379.62	$ 167.13	$ 500.50	**$ 9,796.02**
23	$ 4,854.09	$ 379.62	$ 167.13	$ 523.25	**$ 5,425.63**	$ 9,906.95	$ 379.62	$ 167.13	$ 523.25	**$ 10,478.49**
24	$ 5,169.10	$ 379.62	$ 167.13	$ 546.00	**$ 5,740.64**	$ 10,589.42	$ 379.62	$ 167.13	$ 546.00	**$ 11,160.96**
25	$ 5,484.11	$ 379.62	$ 167.13	$ 568.75	**$ 6,055.65**	$ 11,271.89	$ 379.62	$ 167.13	$ 568.75	**$ 11,843.43**

Other 2023-2024

Program Fee	$15.00
Technology Fee	$6.00
Student Services/Parking	$1.75
	$22.75

Tuition Refund Policy

State-Supported Tuition Refund Policy

For state supported classes, tuition and fees* will be refunded upon official withdrawal by the student according to the following schedule:

- 100% if the college cancels the class.
- 100% if by the close of the fifth instructional day of the quarter.
- 50% if by the close of the 20th instructional day of the quarter.
- 0% after the 20th instructional day of the quarter.

Self-Support Courses

- 100% if the college cancels the class.
- 100% if withdrawal occurs on or before one business day prior to 1st class.
- None if the student registers but doesn’t attend.

It is the student’s responsibility to complete a withdrawal form and submit it to the registration office. The date the withdrawal form is received will be used for calculating refunds.

Students called for military active duty will be granted a refund of tuition and fees paid during the current quarter, subject to the rules and regulations of their respective funding sources. Presentation of official orders is required. The refund policy applies to all Bates students, regardless of financial aid status.

The refund for students registered in courses or programs with an enrollment period other than the standard quarter will be made directly to the funding agency administrator.

**Certain consumable and pass-thru fees are not refundable.*

State-funded Instruction

For state supported classes, tuition and fees* will be refunded upon official withdrawal by the student according to the following schedule:

- 100% if the College cancels the class.
- 100% if by the close of the fifth calendar day of the quarter.
- 50% if by the close of the 20th calendar day of the quarter.
- 0% after the 20th instructional day of the quarter.

It is the student's responsibility to complete a withdrawal form and submit it to the registration office. The date the withdrawal form is received will be used for calculating refunds. Refunds are not granted to students withdrawn for disciplinary reasons.

Students called for military active duty will be granted a refund of tuition and fees paid during the current quarter, subject to the rules and regulations of their respective funding sources.

Presentation of official orders is required. The refund policy applies to all Bates students, regardless of financial aid status. The refund for students registered in courses or programs with an enrollment period other than the standard quarter will be applied on a prorated basis consistent with the general refund policy. Refunds for special programs will be made directly to the funding agency administrator. *Certain consumable and pass-thru fees are not refundable.

Tuition Refund Policy-Financial Aid Recipients

Financial aid recipients are subject to the Return of Title IV Aid regulations as stated in this catalog.

Tuition Refund Policy-Self-Support

100% if the College cancels the class.

100% if by the close of the fifth calendar day of the quarter.

50% if by the close of the 20th calendar day of the quarter.

0% after the 20th instructional day of the quarter.

Drop for Non-Payment Policy

Student tuition and fees are due two weeks before the first day of each quarter. Students registering after the first day of the quarter must pay within two business days of registration. Students with outstanding balances as of the quarterly drop date will be administratively withdrawn and notified by letter. Exceptions for extenuating circumstances require approval by the Vice President of Finance and Administrative Services.

Tuition Payment Plan

The Bates Tuition Payment Plan allows students to stretch out tuition payments so they do not have to pay the full tuition amount all at once. International students are unable to enroll in the Bates Tuition Payment Plan (Nelnet) at this time. Bates determines payment plan availability. Please be aware the college may elect not to have the payment plan available during specific times and dates during registration. If a tuition balance has changed due to changes in a class schedule or financial aid, please do not assume the balance will automatically be adjusted. Please review the payment plan balance online or contact the Cashier's Office at 253.680.7018 to confirm the change.

Refunds

Payments affiliated with the tuition payment plans are processed by Nelnet, not Bates. Therefore, any refunds requested will be mailed by Bates in the form of a check in the student's name to the student's address on file in registration. Costs to participate in the tuition payment plan are:

- $25 per quarter nonrefundable enrollment fee
- $30 nonrefundable returned payment fee if payment is returned

Tutoring

www.BatesTech.edu/Tutoring

E-Tutoring is available at all campuses to registered students seeking assistance in any area related to academic success, including math, reading, writing, study skills, and program-specific materials. Assistance is also available to prospective students who are preparing to take GED tests.

Veterans Services

Veterans may use their Chapter 33 (Post 9/11), Chapter 31 (Voc-Rehab), Chapter 35 (DEAP, Chapter 30 (MGIB), or Chapter 1606 (MGIB-R). Active duty military and their spouses may use tuition assistance, Army Ignited, or MyCAA benefits to attend the college.

Students who wish to use the GI Bill® benefits or other military funding sources must meet with the veterans certifying official located in the financial aid office to submit necessary documents to activate their benefits and receive up-to-date information about their benefits. GI Bill® students must submit their certificate of eligibility letters from the Veterans Administration, and students using other military funding must submit their authorization paperwork before certification of benefits.

Submitting eligibility documentation does not automatically certify a student for GI Bill® benefits.

After enrolling in all of their classes, students must submit a certification request form (written request) to the college's certifying official each quarter they want to use their GI Bill®, The certification request form is available online and at Financial Aid. The certification request form should be submitted at least 30 days prior to the beginning of each quarter to ensure timely benefits. Failure to submit a certification request form may result in delay of benefits.

For more information, call 253.680.7035 or email vabenefits@batestech.edu.

Helpful links at BatesTech.edu

- VA Benefits webpage at BatesTech.edu
- Veterans webpage at BatesTech.edu

VA Pending Payment Compliance

In accordance with Title 38 US Code 3679 subsection (e), this school adopts the following additional provisions for any students using U.S. Department of Veterans Affairs (VA) Post 9/11 G.I. Bill® (Ch. 33) or Vocational Rehabilitation and Employment (Ch. 31) benefits, while payment to the institution is pending from the VA. This school will not:

· Prevent the student's enrollment;

· Assess a late penalty fee to;

· Require student secure alternative or additional funding;

· Deny their access to any resources (access to classes, libraries, or other institutional facilities) available to other students who have satisfied their tuition and fee bills to the institution.

However, to qualify for this provision, such students may be required to:

· Produce the Certificate of Eligibility by the first day of class;

· Provide written request to be certified;

· Provide additional information needed to properly certify the enrollment as described in other institutional policies

Transcripts, Transfer of Credits

Transcripts

Request a transcript

- Use your ctcLink Student Homepage to view or print your unofficial transcript
- Request an official transcript through Parchment

Transfer of Credits

Transferring in credit from other colleges, the military, approved high school dual credit programs, or CLEP tests can be done through the registration office and is free of charge. Credit granted from industry certifications, occupational crosswalks, course challenges, or other extra institutional learning may also be done but carries a fee of $28 per credit. Please see our website for additional details.

Students must specifically request official transcripts be forwarded directly to the Registration Office from accredited post-secondary institutions or military service. Students must also complete the Request for Credit Evaluation form found on our website.

Students will receive notification from the credential evaluator detailing the specific classes accepted for transfer credit. Questions about the decision should be directed to the contact on the Notification of Transferability.

Credit for Military Service

Current and former service members should submit a Joint Service Transcript (JST) for review. Where applicable, Bates awards credit based upon the American Council on Education (ACE) recommendations. Bates allows course challenge, at no cost, for relevant experience that does not have ACE recommendations.

Transferability of Credits

To determine transferability of credits earned at Bates Technical College to other institutions, students may request an official Bates transcript be forwarded to the college by which they wish to have credits evaluated. The receiving college determines the transferability of courses completed at Bates. Request an official transcript online through Parchment.

Transferability of General Education Credits

The transferability of general education credits earned at Bates Technical College is subject to the policies of the receiving institution. General education courses are required in career education programs and are necessary to pursue higher-level degrees. Successful scores on appropriate College Level Examination Program (CLEP) examinations may be used to meet general education requirements for a degree or certificate.

Work-Based Learning

In collaboration with the instructor, student, and employer, students may, with appropriate approval, supplement their instruction with paid and unpaid work-based learning experiences in businesses throughout the Puget Sound area.

Program Offerings

General Education

Associate of Applied Science (AAS) Degrees

Students seeking to complete Associate of Applied Science (AAS) degrees are required to complete general education courses as part of those degrees. In general, most Associate Degrees require a minimum of 15 credits of general education courses in three distribution areas; however, some degrees require more or have specific general education requirements. See the specific degree requirements in each program for specific general education requirements.

All AAS degrees require courses in the following distribution areas:

Communications

- 100-level or above English writing or composition courses

Quantitative

- 100-level or above Mathematics courses

Humanities/Social Science/Natural Science

- 100-level or above humanities courses
- 100-level or above natural science courses
- 100-level or above social sciences courses

Associate of Applied Science Transfer (AAS-T) Degrees

All courses in the AAS-T general education component must be generally transferable courses (typically designated with an "&" in the course number). They also must assure that the student have a foundation in communication and quantitative skills as well as an introduction in science, social science and humanities. These courses may also serve the dual purpose of meeting industry requirements for job preparation.

A minimum of 20 credits must include the following:

- 5 credits in Communication — ENGL& 101-English Composition.
- 5 credits in math — Any generally transferable math course with Intermediate Algebra as a prerequisite.
- 10 credits in Science, Social Science or Humanities — Courses selected from the generally accepted in transfer list. These courses may also met the human relations requirement for technical degrees.

See the specific degree requirements in each program for specific general education requirements.

Associate of Applied Science - Communications Distribution

Communications

ENGL 175	Professional Writing	5
ENGL& 101	English Composition I	5
ENGL& 235	Technical Writing	5

Associate of Applied Science - Quantitative Distribution

Quantitative

MATH 171	Technical Math	5
MATH 172	Business Math	5
MATH& 107	Math in Society	5
MATH& 141	Precalculus I	5
MATH& 142	Precalculus II	5
MATH& 146	Statistics	5
MATH& 151	Calculus I	5
MATH& 152	Calculus II	5
MATH& 153	Calculus III	5

Associate of Applied Science - Sciences & Humanities Distribution

Humanities

CMST 152	Intercultural Communication	5
CMST& 102	Introduction to Mass Media	5
CMST& 210	Interpersonal Communication	5
CMST& 220	Public Speaking	5
CMST& 230	Small Group	5

	Communications	
HIST& 146	United States History I	5
HIST& 147	United States History II	5
HIST& 148	United States History III	5

Social Sciences

BUS& 101	Introduction to Business	5
BUS& 201	Business Law	5
ECON& 201	Microeconomics	5
ECON& 202	Macroeconomics	5
POLS& 101	Introduction to Political Science	5
PSYC& 100	General Psychology	5
PSYC& 200	Lifespan Psychology	5
SOC& 101	Introduction to Sociology	5

Natural Sciences

BIOL& 160	General Biology	5
BIOL& 175	Human Biology with Lab	5
BIOL& 241	Human Anatomy and Physiology I	5
BIOL& 242	Human Anatomy and Physiology II	5
BIOL& 260	Microbiology	5
CHEM& 121	General Chemistry	5
CHEM& 131	Introduction to Organic/Biochemistry	5
NUTR& 101	Intro to Nutrition	5
PHYS& 114	Introductory Physics I (Algebra based Physics)	5

Associate of Applied Science - TRANSFER Communications Distribution

Communications

ENGL& 101	English Composition I	5
ENGL& 235	Technical Writing	5

Associate of Applied Science - TRANSFER Quantitative Distribution

Quantitative

MATH& 107	Math in Society	5
MATH& 141	Precalculus I	5
MATH& 142	Precalculus II	5
MATH& 146	Statistics	5
MATH& 151	Calculus I	5
MATH& 152	Calculus II	5
MATH& 153	Calculus III	5

Associate of Applied Science - TRANSFER Sciences & Humanities Distribution

Humanities

CMST& 102	Introduction to Mass Media	5
CMST& 210	Interpersonal Communication	5
CMST& 220	Public Speaking	5
CMST& 230	Small Group Communications	5
HIST& 146	United States History I	5
HIST& 147	United States History II	5
HIST& 148	United States History III	5
HUM& 101	Introduction to Humanities	5

Social Sciences

BUS& 101	Introduction to Business	5
BUS& 201	Business Law	5
ECON& 201	Microeconomics	5
ECON& 202	Macroeconomics	5
POLS& 101	Introduction to Political Science	5
PSYC& 100	General Psychology	5
PSYC& 200	Lifespan Psychology	5
SOC& 101	Introduction to Sociology	5

Natural Sciences

BIOL& 160	General Biology	5
BIOL& 175	Human Biology with Lab	5
BIOL& 241	Human Anatomy and Physiology I	5
BIOL& 242	Human Anatomy and Physiology II	5
BIOL& 260	Microbiology	5
CHEM& 121	General Chemistry	5
CHEM& 131	Introduction to Organic/Biochemistry	5
NUTR& 101	Intro to Nutrition	5
PHYS& 114	Introductory Physics I (Algebra based Physics)	5

Accounting

CIP Code

52.0302

Description:

Accounting is the process that summarizes economic information about a business entity for use by decision makers. Users of this information include investors, creditors, management and government agencies. The accounting program at Bates Technical College provides training in many types of accounting; such as financial, managerial, payroll, individual taxation, and governmental accounting.

Graduates are prepared for careers as accounting clerks, full charge bookkeepers, tax preparers, and small business accountants. General Education courses provide training in understanding diversity in the workplace, effective oral and written communication and human relations skills.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Accounting AAS (90 Credits)

Plan Code: ATBACAPT

Accounting is the process that summarizes economic information about a business entity for use by decision makers. Users of this information include investors, creditors, management and government agencies. The accounting AAS program at Bates Technical College provides training in many types of accounting; such as financial, managerial, payroll, individual taxation and governmental accounting. Graduates are prepared for careers as accounting clerks, full charge bookkeepers, tax preparers, and small business accountants.

General Education Requirements

In the Accounting AAS degree, BUS& 101, BUS& 201, ECON& 201, and ECON& 202 are considered core requirements and do not meet general education requirements. Students are required to earn additional general education credits as follows:

10 credits from the Communications Distribution

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Accounting AAS (90 Credits)

Quarter 1		
BUS &101	Introduction to Business	5
INFO 101	Computer Application Essentials	5
GENED	Communications (p. 53) or Quantitative (p. 53)	5
Quarter 2		
ACCT& 201	Principles of Accounting I	5
GENED	Communications (p. 53) or Quantitative (p. 53)	5
GENED	Communications (p. 53) or Quantitative (p. 53)or Sciences-Humanities (p. 53) (p. 53)	5
Quarter 3		
ACCT &202	Principles of Accounting II	5
ACCT 220	Payroll Accounting	5
GENED	Sciences-Humanities (p. 53)	5
Quarter 4		
ACCT 230	Governmental Accounting	5
ECON& 201	Microeconomics	5
GENED	Sciences-Humanities (p. 53)	5
Quarter 5		
ACCT &203	Principles of Accounting III	5
ACCT 207	QuickBooks	5
DATA 104	Excel for Analytics	5
Quarter 6		
ACCT 225	Federal Income Tax	5
BUS &201	Business Law	5
ECON& 202	Macroeconomics	5

Outcomes

Comply with appropriate accounting rules and guidelines.
Perform the steps of the accounting cycle.
Choose and perform appropriate financial calculations.
Demonstrate interpersonal skills to allow effective functioning in diverse groups.
Communicate effectively in quantitative and qualitative terms.
Perform and interpret financial statement analysis.
Use a range of techniques to perform analysis, synthesize information and draw conclusions.
Evaluate ethical issues inherently involved in accounting.

Total Credit Hours: 90

Accounting AAST (90 Credits)

Plan Code: ATBACAAS

Accounting is the process that summarizes economic information about a business entity for use by decision makers. Users of this information include investors, creditors, management and government agencies. The accounting AAST program at Bates Technical College provides training in many types of accounting; such as financial, managerial, payroll, individual taxation and governmental accounting. Graduates are prepared for careers as accounting clerks, full charge bookkeepers, tax preparers, and small business accountants.

General Education Requirements

In the Accounting AAS degree, BUS& 101, BUS& 201, ECON& 201, and ECON& 202 are considered core requirements and do not meet general education requirements. Students are required to earn additional general education credits as follows:

10 credits from the Communications Distribution

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Accounting AAST (90 Credits)

Quarter 1

BUS &101	Introduction to Business	5
INFO 101	Computer Application Essentials	5
GENED	Communications (p. 54) or Quantitative (p. 54)	5

Quarter 2

ACCT& 201	Principles of Accounting I	5
GENED	Communications (p. 54) or Quantitative (p. 54)	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 3

ACCT &202	Principles of Accounting II	5
ACCT 220	Payroll Accounting	5
GENED	Sciences-Humanities (p. 54) (p. 53)	5

Quarter 4

ACCT 230	Governmental Accounting	5
ECON& 201	Microeconomics	5
GENED	Sciences-Humanities (p. 54) (p. 53)	5

Quarter 5

ACCT &203	Principles of Accounting III	5
ACCT 207	QuickBooks	5
DATA 104	Excel for Analytics	5

Quarter 6

ACCT 225	Federal Income Tax	5
BUS &201	Business Law	5
ECON& 202	Macroeconomics	5

Outcomes
Comply with appropriate accounting rules and guidelines.
Perform the steps of the accounting cycle.
Choose and perform appropriate financial calculations.
Demonstrate interpersonal skills to allow effective functioning in diverse groups.
Communicate effectively in quantitative and qualitative terms.
Perform and interpret financial statement analysis.
Use a range of techniques to perform analysis, synthesize information and draw conclusions.
Evaluate ethical issues inherently involved in accounting.

Total Credit Hours: 90

Bookkeeping Certificate of Competency (45 Credits)

Plan Code: ATBBOC45

Accounting is the process that summarizes economic information about a business entity for use by decision makers. Users of this information include investors, creditors, management and government agencies. The bookkeeping certificate program at Bates Technical College provides training in financial accounting and payroll. Graduates are prepared for careers as accounting clerks and full charge bookkeepers.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Bookkeeping Certificate of Competency (45 Credits)

Quarter 1

ACCT &201	Principles of Accounting I	5
INFO 101	Computer Application Essentials	5
GENED	MATH or ENGL or HUM/SCI	5

Quarter 2

ACCT &202	Principles of Accounting II	5
GENED	MATH or ENGL or HUM/SCI	5
GENED	MATH or ENGL or HUM/SCI	5

Quarter 3

ACCT 207	QuickBooks	5
ACCT 220	Payroll Accounting	5
DATA 104	Excel for Analytics	5

Subtotal: 45

Subtotal: 30

Outcomes
Comply with appropriate accounting rules and guidelines.
Perform the steps of the accounting cycle.
Choose and perform appropriate financial calculations.

Total Credit Hours: 45

Program Learning Outcomes

Outcomes
Comply with appropriate accounting rules and guidelines.
Perform the steps of the accounting cycle.
Choose and perform appropriate financial calculations.
Demonstrate interpersonal skills to allow effective functioning in diverse groups.
Communicate effectively in quantitative and qualitative terms.
Perform and interpret financial statement analysis.
Use a range of techniques to perform analysis, synthesize information and draw conclusions.
Evaluate ethical issues inherently involved in accounting.

Administrative Medical Assistant

Description:

Administrative Medical Assisting course is designed to provide students with the knowledge and skills necessary to work in administrative roles within healthcare settings such as hospitals, clinics, or medical offices. This program typically covers a wide range of topics related to medical office procedures, healthcare ethics, and communication skills.

Students will learn through competency-based activities in medical office procedures, medical terminology, medical billing and coding, electronic health record (EHR) and practice management system, along with professional skills

in communication, leadership, and medical law and ethics.

Throughout the program, students may have opportunities to participate in hands-on exercises, simulations, and case studies to apply their knowledge in realistic scenarios. Students will have the opportunity participate a work-site learning experience allowing students to gain practical experience and further enhance their skills.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Administrative Medical Assistant AAS (99-100 Credits)

Plan Code: MASAMAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 10:1
- Enrollment point: Fall, Spring
- This is a hybrid course with some classes being offered fully online, with over half the classes being in-person.
- Students will have access to a computer and dual monitors.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Quarter 1

AMA 110	Computer Basics	1
AMA 111	Introduction to Word Processing	3
AMA 112	Fundamentals of Medical Terminology	4
AMA 113	Healthcare Communications	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

AMA 114	Introduction to the Health Care Profession	5
AMA 115	Digital Medical Editing	3
AMA 116	Medical Office Procedures	3
AMA 117	Beginning Medical Terminology	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

AMA 118	Administrative Medical Concepts	4
AMA 119	Advanced Medical Office Procedures	3
AMA 120	Introduction to Spreadsheets	3
AMA 121	Intermediate Medical Terminology	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

AMA 122	Intermediate Administrative Medical Concepts	4
AMA 123	Electronic Health Records	4
AMA 124	First Aid/CPR	1
AMA 125	Practice Management System Applications	2
AMA 127	Medical Insurance and Reimbursement	4
AMA 128	Advanced Medical Terminology - Pathophysiology	4

Quarter 5

AMA 126	Advanced Administrative Medical Concepts	4
AMA 129	Medical Coding Applications	4
AMA 133	HIV/BBP Prevention Education	1
AMA 135	Practical Applications	3

Quarter 6

AMA 130	Medical Office Supervision and Management	3
AMA 131	Interview Techniques	3
AMA 134	Healthcare Credentialing	2

AND either this course:

AMA 132	Phlebotomy	3

Or these two courses:

AMA 296	Work-Based Learning Experience	1-3
AMA 297	Work-Based Learning Seminar	1

Administrative Medical Assistant Certificate of Competency (76 Credits)

Plan Code: MASAMC45

4 quarter Certificate of Competency

This certificate is primarily online, and hybrid with some face-to-face courses. See course descriptions for more information.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Quarter 1

AMA 110	Computer Basics	1
AMA 111	Introduction to Word Processing	3
AMA 112	Fundamentals of Medical Terminology	4
AMA 113	Healthcare Communications	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

AMA 114	Introduction to the Health Care Profession	5
AMA 115	Digital Medical Editing	3
AMA 116	Medical Office Procedures	3
AMA 117	Beginning Medical Terminology	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

AMA 118	Administrative Medical Concepts	4
AMA 119	Advanced Medical Office Procedures	3
AMA 120	Introduction to Spreadsheets	3
AMA 121	Intermediate Medical Terminology	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

AMA 122	Intermediate Administrative Medical Concepts	4
AMA 123	Electronic Health Records	4
AMA 124	First Aid/CPR	1
AMA 125	Practice Management System Applications	2
AMA 127	Medical Insurance and Reimbursement	4
AMA 128	Advanced Medical Terminology - Pathophysiology	4

Medical Billing & Coding (8 Credits)

Plan Code: MASMBC01

1 quarter Certificate of Training

This certificate offers online, and hybrid courses. See course descriptions for further information.

Required Courses:

Medical Billing & Coding (8 Credits)

AMA 205	Medical Claims Processing	4
AMA 206	Medical Billing & Coding Sims	4

Program Learning Outcomes

Use medical terminology related to human anatomy, physiology, common disease process and common medical procedures performed in the medical office setting
Enhance career opportunities and employment skills expected for an entry-level medical office professional
Demonstrate ethical behaviors, such as confidentiality, empathy and understanding in the workplace
Perform medical administrative tasks, medical transcription, and electronic health records
Obtain skills in the management of multiple tasks and oral and written communication
Use software associated with the medical workplace

Advanced Machining

CIP Code

48.0501

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

Machinists produce precision parts, tools, and instruments utilizing both manual and computerized machining systems. For over sixty years, the machinist program has prepared students for apprentice positions through local apprenticeship agencies. The instruction contains extensive hands-on experience in the use of traditional precision tooling and machining equipment, as well as sophisticated, state-of-the-art technology including CNC lathes, CNC milling machines, and program-specific software. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Machinist AAS (99 Credits)

Plan Code: MTCMAAPT

6 quarter AAS

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Sciences and Humanities Distribution

5 credits MACH 120 for Quantitative requirement

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

MACH 150	Measurement, Materials, & Safety	5
MACH 155	Job Planning, Bench-work, and Layout	5
MACH 160	Conventional Machining	5
GENED	Communications (p. 53)	5

Quarter 2

CNCM 127	Blueprint Reading & GD&T	5
MACH 120	Machine Shop Math	5
MACH 166	Conventional Turning	3
MACH 167	Conventional Milling	3
MACH 168	Surface Grinding	3

*MACH 120 meets the general education requirement for MATH

Quarter 3

CNCM 113	CNC Programming	4
CNCM 126	CNC Mill & Lathe Operations & Set-Up	5
MACH 117	Measurement Applications	5
GENED	Communications (p. 53) if not already taken	0 or 5

Quarter 4

CNCM 114	CNC Troubleshooting	3
CNCM 203	CNC Mill II	5
CNCM 211	CNC Lathe II	5
GENED	Communications (p. 53) if not already taken	0 or 5

Quarter 5

CNCM 215	Computer-Aided Manufacturing	5
CNCM 218	Industry Technology	5

AND

Choose ONE of the following for 8 credits:

MACH 142	Advanced Machine Shop	8

	Applications	
WBAS 101	Welding Basics	8

Quarter 6

MACH 224	CAM II	5
MACH 232	Advanced CNC Machining	5
GENED	Sciences-Humanities (p. 53)	5

TOTAL CREDITS 99

Electives (Not included in total credits)

MACH 292	Independent Project	1 to 5
MACH 293	Independent Project	1 to 5

CNC Operator-Certificate of Training (14 Credits)

Plan Code: MTCCOC01

1 quarter Certificate of Training

Required Courses

CNC Operator-Certificate of Training (14 Credits)

CNCM 113	CNC Programming	4
CNCM 126	CNC Mill & Lathe Operations & Set-Up	5
MACH 117	Measurement Applications	5

Total Credit Hours: 14

Toolmaking Technology-Certificate of Training (15 Credits)

Plan Code: MTCTTC01

1 quarter Certificate of Training

Required Courses

Toolmaking Technology-Certificate of Training (15 Credits)

MACH 150	Measurement, Materials, & Safety	5
MACH 155	Job Planning, Bench-work, and Layout	5
MACH 160	Conventional Machining	5

Total Credit Hours: 15

Program Learning Outcomes

Outcomes

Effective Communication
Set up and operate a variety of CNC lathes and milling machines using 2, 3 and 4 axis movements to produce parts to specifications
Set up and operate a variety of manual lathes, milling machines, and precision grinding machines to produce parts to specification
Use micrometers, indicators, calipers, height gauges etc. to measure and inspect parts accurately
Use geometric dimensioning and tolerancing symbols as applied to Engineering drawings
Interpret Material Safety Data Sheets (MSDS) used in machining fluids and materials
Use common CNC machine language to write programs for CNC lathes and mills
Read and interpret engineering drawings as they apply to machined parts
Solve practical trigonometry problems related to the geometry of parts
Apply safety procedures appropriate to running a modern machine shop
Identify and use appropriate tool materials for a given application
Apply speeds and feeds for various cutting tools and materials
Produce a capstone project to include the above skill sets
Use CAD/CAM software to generate geometry and tool path

Applied Business Management

CIP: 52.0201

EPC: 502

Program Description

The Applied Business Management (ABM) program prepares graduates to plan, organize, direct, and control the functions and processes of a firm or organization. Its courses train graduates to enter in-demand positions in human resources and entrepreneurship to serve small-business development interests in the college's trades programs and in the community. All program courses emphasize applied, hands-on, project-based learning beginning with foundational courses. They progress to in-depth training in their chosen specialization. Courses are primarily hybrid (part onsite, part online) with in-person sessions taught by industry experts to apply

theory across relevant contexts, but online options are available.

The program offers a six-quarter ABM Associate in Applied Science Transfer (AAS-T). It has three structural components: (a) technical core (50 credits), (b) specialization tracks (10 credits), and (c) general education requirements (30 credits), for a total of 90 required credits. It is designed for direct employment and to pathway into baccalaureate in applied science (BAS) in business options in the state's community and technical college system.

Fully-online options are available.

Applied Business Management AAS-T (90 Credits)

Plan Code: BAMAMAAS

Applied Business Management AAS-T

The program offers a six-quarter ABM Associate in Applied Science Transfer (AAS-T). It has three structural components: (a) technical core (50 credits), (b) specialization tracks (10 credits), and (c) general education requirements (30 credits), for a total of 90 required credits. It is designed for direct employment and to pathway into baccalaureate in applied science (BAS) in business options in the state's community and technical college system.

Embedded Certificates of Competencies

The AAS-T also has two embedded certificates that align with specialization tracks (Entrepreneurship and Human Resources).

Applied Business Management AAS-T (90 Credits)

Students must earn at least a 2.0 grade in each course (Technical Core, Specialization, and General Education) to count towards the AAS-T.

Quarter 1

BUS &101	Introduction to Business	5
ENGL& 101	English Composition I	5
INFO 101	Computer Application Essentials	5

Quarter 2

ACCT &201	Principles of Accounting I	5
DATA 104	Excel for Analytics	5
MATH& 146	Statistics	5

Quarter 3

ACCT &203	Principles of Accounting III	5
BUS 210	Applied Marketing Principles	5
ECON& 201	Microeconomics	5

Quarter 4

CMST& 220	Public Speaking	5
ECON& 202	Macroeconomics	5
	Specialization Elective	5

Quarter 5

BUS &201	Business Law	5
CMST 152	Intercultural Communication	5
	Specialization Elective	5

Quarter 6

BUS 230	Managing & Leading Through Change	5
BUS 298	Applied Business Capstone	5
ENGL& 235	Technical Writing	5

Specialization Track (10 Credits)

Choose 1 Specialization Track, for a total 10 credits

Entrepreneurship Track (10 Credits)

ACCT 207	QuickBooks	5
BUS 280	Small Business Planning	5
		Subtotal: 10

Human Resources Track (10 Credits)

BUS 250	Human Resource Management Principles	5
BUS 255	Employment Law	5
		Subtotal: 10

Total Credit Hours: 90

Program Learning Outcomes

Outcomes
Discuss the role of business functions (operations, marketing, and finance) in the achievement of organizational goals.
Apply business principles in operations, marketing, and finance to meet sustainable and ethical organizational goals.
Explore industry standards, trends, and regulations and their possible impacts on organizational behavior, objectives, and strategies.
Examine organizational policies, processes, and procedures for ethical, legal, and other business function implications.
Apply effective and inclusive communication, management, leadership, and team-building skills across diverse contexts.
Develop problem-solving skills to effectively, efficiently, and ethically address organizational opportunities and challenges.
Develop and apply professional behaviors and norms to support career success.

Architectural Woodworking/Cabinet Making Technology

CIP Code:

48.0703

Program Description:

Students prepare for careers in cabinet making and millwork crafts, in positions such as wood pattern maker, cabinet maker, door assembler, solid surface fabricator, cabinet and millwork installer, project manager, sander, utility worker, wood pattern maker and machine operator. Shop activities are an integral part of the program and provide training and practical applications in complex joinery, finishing, and installation. Students work with wood and high-tech laminates, perform component design and fabrication, and learn the use of tools and equipment. This is a pre-apprenticeship program for the Seattle/Tacoma Millmen and Cabinet Makers Apprenticeship Committee. This program also provides extended learning opportunities for persons previously or currently employed in these and other related occupations.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Architectural Woodworking/Cabinet Making Technology AAS (112 Credits)

Plan Code: CMMAWAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment Point: Fall, Winter, Spring
- This degree is primarily face-to-face with some hybrid courses. See course descriptions for further information.
- While in the program, students will learn to use a table saw, band saw, plainer, router, shaper, hand tools, belt sander, and joiner.
- Students will be responsible for purchasing their own hand tools. (list provided by instructor)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Quarter 1

ARWC 101	Introduction to Cabinetmaking	3
ARWC 102	Safety Principles	4
ARWC 104	Materials	2
ARWC 105	Machine Tools I	4
ARWC 109	Hand Tools	3
ARWC 111	Tool Maintenance/Sharpening	3

Quarter 2

ARWC 103	Cabinetry Blueprints/ Plans	4
ARWC 108	Portable Power Tools	3
ARWC 110	Basic Cabinet Joinery	4
ARWC 112	Cabinetmaking / Face Frame Construction I	4
ARWC 118	Occupational Math	3

GENED	Communications (p. 53) or Quantitative (p. 53)	5

Quarter 3

ARWC 106	Machine Tools II	4
ARWC 107	Machine Tools / CNC	3
ARWC 113	Cabinetmaking / Face Frame Construction II	4
ARWC 116	Drawers and Doors	2
ARWC 119	Jigs and Fixtures	2
GENED	Communications (p. 53) or Quantitative (p. 53)	5

Quarter 4

ARWC 114	Cabinetmaking / 32mm System	3
ARWC 115	Finishing Methods I	3
ARWC 117	Laminates / Countertops /Solid Surface	3
ARWC 120	Cabinetmaking / Commercial Construction	3
ARWC 204	Cabinet Installation - Residential / Commercial	4
GENED	Sciences-Humanities (p. 53)	5

Quarter 5

ARWC 202	Architectural Millwork	3
ARWC 203	Beginning Furniture Projects	5
ARWC 205	Advanced Joinery	4
ARWC 206	Cabinetmaking Computer Technology	4

Quarter 6

ARWC 201	Wood Bending/Lamination Techniques	3
ARWC 207	Veneering Technology	2
ARWC 208	Employment Preparation	3
ARWC 209	Advanced Projects	5

Electives

ARWC 291	Practical Applications	1-13
ARWC 292	Independent Project I	5
ARWC 293	Independent Project II	5
ARWC 294	Independent Project III	5
ARWC 296	Work-Based Learning Experience I	1-13
ARWC 297	Work-Based Learning Experience II	1-13

Total Credit Hours: 112

Production Cabinet Making Certificate of Competency (79 Credits)

Plan Code: CMMAWC45

- 4 quarter Certificate of Competency
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment Point: Fall, Winter, Spring
- This degree is primarily face-to-face with some hybrid courses. See course descriptions for further information.
- While in the program, students will learn to use a table saw, band saw, plainer, router, shaper, hand tools, belt sander, and joiner.
- Students will be responsible for purchasing their own hand tools. (list provided by instructor)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Quarter 1

ARWC 101	Introduction to Cabinetmaking	3
ARWC 102	Safety Principles	4
ARWC 104	Materials	2

ARWC 105	Machine Tools I	4
ARWC 109	Hand Tools	3
ARWC 111	Tool Maintenance/Sharpening	3

Quarter 2

ARWC 103	Cabinetry Blueprints/ Plans	4
ARWC 108	Portable Power Tools	3
ARWC 110	Basic Cabinet Joinery	4
ARWC 112	Cabinetmaking / Face Frame Construction I	4
ARWC 118	Occupational Math	3
GENED	Communications (p. 53) or Quantitative (p. 53)	5

Quarter 3

ARWC 106	Machine Tools II	4
ARWC 107	Machine Tools / CNC	3
ARWC 113	Cabinetmaking / Face Frame Construction II	4
ARWC 116	Drawers and Doors	2
ARWC 119	Jigs and Fixtures	2
GENED	Communications (p. 53) or Quantitative (p. 53)	5

Quarter 4

ARWC 114	Cabinetmaking / 32mm System	3
ARWC 115	Finishing Methods I	3
ARWC 117	Laminates / Countertops /Solid Surface	3
ARWC 120	Cabinetmaking / Commercial Construction	3
ARWC 204	Cabinet Installation - Residential / Commercial	4
GENED	Sciences-Humanities (p. 53)	5

Total Credit Hours: 79

Program Learning Outcomes

1. Perform cabinetmaking activities to industry standards
2. Interpret drawings for production planning and estimating
3. Select, maintain, and operate hand tools, portable power tools, and stationary machinery
4. Select various grades of lumber and building materials
5. Perform sanding and adhesive operations to industry standards
6. Select and apply finishes and hardware used in manufacturing of furniture, cabinets and millwork
7. Produce cabinets and other architectural specialties including millwork and moldings to be installed in residential and commercial applications
8. Apply mathematical solutions for cabinetmaking applications

Auto Body Rebuilding and Refinishing

CIP Code
47.0603

Program Description:

Students prepare for entry- level employment in the auto body rebuilding and refinishing industry, serving independent auto shops, automotive dealerships, government agencies, utility firms, and other companies that maintain vehicle fleets. Positions include auto body repairer, automotive refinisher, frame repairer, glass installer, painter, renovator, and shop estimator. Upon successful completion of the program, students can qualify to take the I-CAR steel welding qualification test. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Auto Body Rebuilding and Refinishing AAS (113 Credits)

Plan Code: ACRAEAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, and face-to-face courses. See course descriptions for more information.
- Students will be using paint guns, paint booths, power and hand tools in this program.
- Students are responsible for purchasing their own boots, coveralls, and paint respirators.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Quarter 1

AUTOB 101	Auto Body Math Applications	3
AUTOB 102	Safety Principles	3
AUTOB 103	Materials Identification	3
AUTOB 111	Introduction to Surface Preparation	2
AUTOB 112	Surface Preparation Applications	5

Quarter 2

AUTOB 110	Window Mechanisms	4
AUTOB 206	Glass Installation	4
WBAS 101	Welding Basics	8
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

AUTOB 105	Major Panel Replacement	5
AUTOB 106	Alignment - Sheet Metal	5
AUTOB 113	Advanced Surface Preparations	5
AUTOB 203	Shop Welding	5
AUTOB 207	Introduction to Plastic Repair	2

Quarter 4

AUTOB 208	Plastic Repair Methods	5
AUTOB 211	Special Projects	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 5

AUTOB 201	Topcoat Systems	5
AUTOB 202	Topcoat Systems Applications	5
AUTOB 204	Unibody Alignment	5
AUTOB 205	Body Over Frame Alignment	4

Quarter 6

AUTOB 104	Minor Body Repair Methods	5
AUTOB 107	Alignment - Bumpers	3
AUTOB 108	Alignment - Head Lamps	1
AUTOB 109	Trim and Accessories	3
AUTOB 210	Introduction to Estimating	4

Electives

AUTOB 291	Practical Applications	18
AUTOB 292	Independent Project I	5
AUTOB 293	Independent Project II	5
AUTOB 294	Independent Project III	5
AUTOB 296	Work-Based Learning Experience I	1-13
AUTOB 297	Work-Based Learning Experience-Seminar	2
AUTOB 298	Work-Based Learning Experience II	1-13

Subtotal: 0

Total Credit Hours: 113

Auto Body Repair Certificate of Competency (113 Credits)

Plan Code: ACRARC90

- 6 quarter CoC

- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, and face-to-face courses. See course descriptions for more information.
- Students will be using paint guns, paint booths, power and hand tools in this program.
- Students are responsible for purchasing their own boots, coveralls, and paint respirators.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Quarter 1		
AUTOB 101	Auto Body Math Applications	3
AUTOB 102	Safety Principles	3
AUTOB 103	Materials Identification	3
AUTOB 111	Introduction to Surface Preparation	2
AUTOB 112	Surface Preparation Applications	5
Quarter 2		
AUTOB 110	Window Mechanisms	4
AUTOB 206	Glass Installation	4
WBAS 101	Welding Basics	8
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
AUTOB 105	Major Panel Replacement	5
AUTOB 106	Alignment - Sheet Metal	5
AUTOB 113	Advanced Surface Preparations	5
AUTOB 203	Shop Welding	5
AUTOB 207	Introduction to Plastic Repair	2
Quarter 4		
AUTOB 208	Plastic Repair Methods	5
AUTOB 211	Special Projects	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 5		
AUTOB 201	Topcoat Systems	5
AUTOB 202	Topcoat Systems Applications	5
AUTOB 204	Unibody Alignment	5
AUTOB 205	Body Over Frame Alignment	4
Quarter 6		
AUTOB 104	Minor Body Repair Methods	5
AUTOB 107	Alignment - Bumpers	3
AUTOB 108	Alignment - Head Lamps	1
AUTOB 109	Trim and Accessories	3
AUTOB 210	Introduction to Estimating	4

Electives

AUTOB 291	Practical Applications	18
AUTOB 292	Independent Project I	5
AUTOB 293	Independent Project II	5
AUTOB 294	Independent Project III	5
AUTOB 296	Work-Based Learning Experience I	1-13
AUTOB 297	Work-Based Learning Experience-Seminar	2
AUTOB 298	Work-Based Learning Experience II	1-13

Subtotal: 0

Total Credit Hours: 113

Autobody Refinishing Certificate of Training (20 Credits)

Plan Code: AUMATAPT

- 1-2 quarter Certificate of Training

- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, and face-to-face courses. See course descriptions for more information.
- Students will be using paint guns, paint booths, power and hand tools in this program.
- Students are responsible for purchasing their own boots, coveralls, and paint respirators.
- This certificate is primarily face-to-face. See course descriptions for more information.

Required Courses:

Quarter 1		
AUTOB 102	Safety Principles	3
AUTOB 111	Introduction to Surface Preparation	2
AUTOB 112	Surface Preparation Applications	5
Quarter 2		
AUTOB 201	Topcoat Systems	5
AUTOB 202	Topcoat Systems Applications	5

Total Credit Hours: 20

Program Learning Outcomes

1. Identify automobile parts and systems, and understand their operation, including supplemental restraint systems
2. Set up and operate various types of frame and unibody straightening equipment
3. Perform frame and unibody measuring using both manual and computerized measuring systems
4. Restore damaged frames and unibodies to factory specifications using the latest pulling systems
5. Perform structural sectioning of unibody components, using I-CAR approved procedures
6. Remove, replace and align sheet metal parts, suspension components, and replace automotive glass
7. Apply a variety of automotive finish materials
8. Participate in complete refinishing of automobiles, along with all aspects of spot repair and panel refinishing utilizing refinish materials and equip.
9. Perform compounding and polishing operations on both new and old automobile finishes
10. Perform interior and exterior detailing of automobiles
11. Estimate repair cost related to collision damage
12. Service automotive electrical systems
13. Perform structural and non-structural welds with wire feed welders to industry standards
14. Understand hazardous waste management
15. Demonstrate shop safety practices

Automation and Mechatronics, TRON

This program provides training for entry-level positions in manufacturing, fulfillment, food production and many other industries. As an Industrial Automation technician, you'll be responsible for keeping the line running smoothly, apply the skills you've earned in mechatronics to troubleshoot, maintain, align, monitor and repair a wide variety of industrial equipment. Successful graduates are observant, of an inquisitive, probing nature and, as a whole, are tinkerers. There are opportunities in this industry for travel, relocation and furthering your education. With increasing technology and automation, the job market has been strong for many years and is expected to keep growing.

CIP Code
47.0105

TRON, Automation and Mechatronics AAS (95 Credits)

Plan Code: IETIRAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 20:1
- Enrollment Point: Fall, Winter, Spring, Summer

- This program offers hands-on, hybrid, web-enhanced and online courses. Please see course descriptions for more information.
- Program features equipment and software from industry leaders such as Allen Bradley, Rockwell Automation, FANUC Robotics, Bosch, Siemens, Famic Technologies, National Instruments, SMC MAP equipment, and Parker Hydraulics equipment.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Fall Quarter

TRON 110	Introduction to Robotics/Automation	1
TRON 111	Analog Electronics	5
TRON 114	Measurement	4
TRON 117	Introduction to PLC	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Winter Quarter

TRON 121	Digital Electronics	5
TRON 124	Pneumatics and Hydraulics	4
TRON 127	Blueprint Reading	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Spring Quarter

TRON 131	Career Success Seminar	3
TRON 134	Computer Technology	4
TRON 137	Mechanical Systems	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Summer Quarter

TRON 141	Sensing our Environment	4
TRON 144	Critical Thought and App.	5
TRON 147	Embedded Controllers	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53) (p. 53)if not already taken (p. 53)	

Fall or Spring Quarter - 5th or 6th Quarter

TRON 211	Industrial Robotics I	5
TRON 214	Motors & Control Systems	5
TRON 217	Introduction to CNC Machining	3

Winter or Summer Quarter - 5th or 6th Quarter

TRON 221	Shop Floor IT	4
TRON 224	Industrial Robotics II	5
TRON 227	Independent Projects	5

Total Credit Hours: 95

TRON, Automation and Mechatronics CoT - Robotics Specialist (45 Credits)

- Maximum class size: 20
- Student to teacher ratio: 20:1
- Enrollment Point: Fall, Winter, Spring, Summer
- This program offers hands-on, hybrid, web-enhanced and online courses. Please see course descriptions for more information.
- Program features equipment and software from industry leaders such as Allen Bradley, Rockwell Automation, FANUC Robotics, Bosch, Siemens, Famic Technologies, National Instruments, SMC MAP equipment, and Parker Hydraulics equipment.

Required Courses

Automation and Mechatronics, TRON Certificate of Training - Robotics Specialist (45 Credits)

TRON 117	Introduction to PLC	4
TRON 124	Pneumatics and Hydraulics	4
TRON 127	Blueprint Reading	4
TRON 137	Mechanical Systems	5
TRON 141	Sensing our Environment	4
TRON 147	Embedded Controllers	5
TRON 211	Industrial Robotics I	5
TRON 214	Motors & Control Systems	5
TRON 221	Shop Floor IT	4
TRON 224	Industrial Robotics II	5

Subtotal: 45

Total Credit Hours: 45

Program Learning Outcomes

1. Identify common mechatronic components, devices, and symbols and verify their operation.

2. Analyze Direct current and alternating current circuits using various circuit simplification and analysis techniques.

3. Measure mechatronic parameters using industry-relevant tools and processes.

4. Demonstrate effective oral and written communication skills appropriate to a mechatronics work environment.

5. Develop, troubleshoot and implement digital hardware and programming to solve a problem.

6. Manage energy delivery and consumption to industry standards of safety, timeliness and accuracy.

7. Display professional, safe and ethical behavior germane to a manufacturing environment.

8. Operate/program/repair industrial robots to industry standards of safety, accuracy and timeliness.

9. Describe current status of robotics technology and new developments.

10. Construct, troubleshoot and implement digital hardware and programming to solve a problem.

11. Demonstrate energy delivery and consumption to industry standards of safety, accuracy and timeliness.

12. Develop effective oral and written communication skills appropriate to a mechatronics work environment.

13. Describe effective oral and written communication skills appropriate to a mechatronics work environment.

14. Explain common mechatronic components, devices, and symbols and verify their operation.

Automotive Technology

Program Description:

In an active, campus auto service facility, students practice all aspects of the profession, from balancing tires to diagnosing engine problems. Using advanced computerized analyzers, students learn to perform repairs on engines and transmissions, service fuel injection systems, and much more. Bates' automotive program curriculum aligns with the ASE Education Foundation for both secondary and post-secondary levels. Instruction is configured according to Automotive Service Excellence (ASE) certification requirements, and students are encouraged to take one or more ASE certification tests while completing the program.

- 8 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This degree offers web-enhanced face-to-face courses. See course descriptions for more information.
- In this program, students will learn to use vehicle scan tools, oscilloscopes, alignment machines, engine test and diagnostic equipment, DVOMs, specialized chassis diagnostic tools, tire machines and balancers, presses, and brake equipment.
- Students are responsible for purchasing their own safety glasses, non-skid oil resistant work boots, dickies pants and shirts, and a hand tool set.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

CIP Code
47.0604

Automotive Technology - Associate of Applied Science (AAS) (142 Credits)

Plan Code: AUMATAPT

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Fall Quarter 1st Year

AUTOM 101	Basic Engines	4
AUTOM 102	Engine Systems	4
AUTOM 103	Intro to Basic Electrical Theory	4
AUTOM 105	Engines/Electrical Applications	3
AUTOM 106	Shop Safety and Meter Certification	1
AUTOM 124	Intro to Emission Systems	2

Winter Quarter 1st Year

AUTOM 121	Basic Engine Performance	5
AUTOM 122	Basic Ignition Systems	5
AUTOM 123	Intro to Fuel Systems	4
AUTOM 125	Intro to Fuel Injection	2
GENED	Communications (p. 53) or Quantitative (p. 53)	5

Spring Quarter 1st Year

AUTOM 130	Intro to Lighting/Instrument Systems	4
AUTOM 131	Intro to Clutches/Manual Trans	4
AUTOM 132	Basic Auto Transmission/Transaxle	4
AUTOM 133	Intro to Four and All Wheel Drive	4
GENED	Communications (p. 53) or Quantitative (p. 53)	5

Summer Quarter 1st Year

AUTOM 140	Wheel Alignment and Steering System	4
AUTOM 141	Brake Systems	4
AUTOM 142	Drum and Disc Braking Systems	4
AUTOM 143	Basic Heating/ Air Conditioning	4
GENED	Sciences-Humanities (p. 53)	5

Fall Quarter 2nd Year

AUTOM 201	Advanced Engine Repair	5
AUTOM 202	Advanced Engine Assembly	3
AUTOM 203	Automotive Electrical Systems	4
AUTOM 204	Battery/Starters and Charging Systems	4

Winter Quarter 2nd Year

AUTOM 220	Ignition Systems Service	4
AUTOM 221	Fuel System Service	4
AUTOM 222	Emissions Systems Service	3
AUTOM 223	Fuel Injection Service	3

Spring Quarter 2nd Year

AUTOM 230	Lighting and Instrument Service	3
AUTOM 231	Clutches and Manual Transmission Service	5
AUTOM 232	Automatic Transmission/Transaxle Service	4
AUTOM 233	Four and All-Wheel Drive Service	4

Summer Quarter 2nd Year

AUTOM 240	Advanced Wheel Alignment/Steering System Service	4
AUTOM 241	Advanced Brake Service	4
AUTOM 242	Advanced Disc and Drum Brake Service	4
AUTOM 243	Applied HVAC Service	3

Electives

AUTOM 296	Work-Based Learning Experience	1-13

Total Credit Hours: 142

Program Learning Outcomes

1. Diagnose mechanical malfunctions and performance problems and make necessary repairs
2. Operate precision automotive diagnostic and repair equipment
3. Interpret repair manuals and computer-based programs dealing with specifications and repair procedures
4. Practice customer service skills with customers, employer, and fellow employees
5. Use tools and equipment found in an automotive repair shop
6. Diagnose and service a variety of automotive systems including electrical, brakes, engines, transmissions,

and steering and suspension

7. Follow established procedures for safety and accident prevention in the automotive service facility
8. Describe the purpose of the laws concerning personal and environmentally safe handling of hazardous waste
9. Define information that should be completed on repair orders, accurately describing customer issues in pursuit of a satisfactory repair

Barber

Program Description:

Bates Technical College has the only day and evening college barber program in the State of Washington in which students prepare to become licensed barbers while learning in a stand-alone program and working in an on-campus shop that serves the public. Students are evaluated on the performance of each competency of the curriculum to ensure readiness to meet state licensure requirements and enter the profession. Prior to program completion, each student must take and pass a comprehensive written and practical examination that includes theoretical concepts. The program also provides extended learning opportunities for persons previously or currently employed in related professions. Required barber Kits (2) are purchased in first quarter, and are included in tuition and fees.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

CIP Code
12.0402

Barber Associate of Applied Science (90 Credits)

Plan Code: BARBAAPT

- 4 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment Point: Fall, Winter, Spring, Summer
- This program is face-to-face
- Day and evening courses available
- Students will be required to purchase two (2) barbering kits included in tuition and fees

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

See a Career Advisor prior to choosing courses that meet general education requirements.

Required Technical Core Courses:

Quarter 1		
BARB 101	Barbering Fundamentals	6
BARB 102	Barbering Application Fundamentals	6
COLL 101	College Success	5
Quarter 2 or 3		
BARB 103	Advanced Barbering Principles	10
BARB 104	Client Practice & Application I	11
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 2 or 3		
BARB 105	Barbering & Business Management	10
BARB 106	Client Practice & Application II	11

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

BARB 107	Advanced Applications	10
BARB 108	Barbering License Test Preparation	11
GENED	If not already taken	

Total Credit Hours: 90

Barber Certificate of Competency (80 Credits)

- 4 quarter Certificate of Competency
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment Point: Fall, Winter, Spring, Summer
- This program is face-to-face with web-enhancement
- Day and evening courses available
- Students will be required to purchase two (2) barbering kits included in tuition and fees

General Education Requirements

- 5 credits COLL 101 College Success
- Quantitative and Human Relations are embedded in core courses

See a Career Advisor prior to choosing courses that meet general education requirements.

Required Technical Core Courses:

Quarter 1

BARB 101	Barbering Fundamentals	6
BARB 102	Barbering Application Fundamentals	6
COLL 101	College Success	5

Quarter 2 or 3

BARB 103	Advanced Barbering Principles	10
BARB 104	Client Practice & Application I	11

Quarter 2 or 3

BARB 105	Barbering & Business Management	10
BARB 106	Client Practice & Application II	11

Quarter 4

BARB 107	Advanced Applications	10
BARB 108	Barbering License Test Preparation	11

Program Learning Outcomes

Program Outcomes
Implement rigorous sanitation and safety protocols, ensuring a secure and hygienic environment that respects the diverse needs of clients and staff.
Understand and comply with Washington State barbering regulations, maintaining legal standards.
Successfully prepare for and pass the Washington State barber licensing examination.
Showcase expertise in a diverse range of haircutting, and styling techniques for a diverse variety of hair textures and cultural preferences.
Develop strong communication skills for effective client consultation and satisfaction, demonstrating cultural competence and inclusivity.
Uphold high ethical standards, professionalism, and confidentiality in the barbering profession.
Utilize fundamental business and marketing principles for effective barber shop management.
Deliver outstanding client service, fostering satisfaction, loyalty, and positive referrals, prioritizing inclusivity and celebrating the diversity of clients.

Biomedical Service Technician

6 quarter AAS

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

Health care, the largest industry in the country, employs more than 14 million people, and figures continues to mount. From small-town private practices to mammoth inner-city hospitals, health care workers are in high demand. The patients in those practices and hospitals depend not only on the expertise of doctors and nurses, but on the proper functioning of sophisticated biomedical equipment. The people responsible for repairing and maintaining these highly specialized machines and

instruments such as defibrillators, heart monitors, electric wheelchairs, medical imaging equipment (x rays, CAT scanners, and ultrasound equipment), are biomedical service technicians. They inspect and install equipment used by doctors, nurses, and other healthcare providers for researching, monitoring, diagnosing, and treating illnesses and disorders. They also repair, calibrate, and safety test the equipment in order to ensure proper function and safety for both the operator and the patient

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

CIP CODE: 15.0401

Biomedical Service Technician: Clinical Engineering AAS (115 Credits)

Plan Code: BITCEAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 11:1
- Enrollment point: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, web-enhanced, and face-to-face courses. See course descriptions for further information.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Quarter 1

BMST 105	Testing Equipment	5
BMST 106	Soldering	2
EEST 111	Electronics Theory I	4
EEST 112	Electronics Laboratory I	5
EEST 113	Electronics Applied Math I	2

Quarter 2

BMST 119	Medical Equipment Research I	1
BMST 120	Biomedical I	3
EEST 114	Electronics Theory II	4
EEST 115	Electronics Laboratory II	5
EEST 116	Electronics Applied Math II	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

BMST 107	Schematics	3
BMST 121	Biomedical II	3
EEST 108	Electronic Devices I	4
EEST 223	Introduction to Digital Systems	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

BMST 109	Applied Service I	3
BMST 210	Biomedical III	3
BMST 219	Medical Equipment Research II	2
EEST 109	Electronic Devices II	4
EEST 207	Introduction to Networking	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 5

BMST 110	Applied Service II	2
BMST 201	Imaging Systems	3
BMST 215	Introduction to Medical Terminology	3
BMST 211	Biomedical IV	3
EEST 221	Electronic Principles -RFID	4
ELECTIVE	See Below	5

Quarter 6

BMST 102	Blood Borne Pathogens	3
BMST 103	HIPAA	2
ELECTIVE	See Below	5
ELECTIVE	See Below	5

Subtotal: 114-115

Electives (9-10 Credits Required)

Either BMST220 or BMST296 is **required**

and an additional elective from below

Choose one of the below:

BMST220 (p. 212)	Biomedical Engineering Application	5
	and	
	Elective from below	
	or	
BMST296 (p. 213)	Work Based Learning Experience with Seminar	1-13
	and/or	
	Elective from below	

BMST 220	Biomedical Engineering Applications	5
BMST 291	Practical Applications	1-13
BMST 292	Independent Projects I	5
BMST 293	Independent Projects II	5
BMST 296	Work Based Learning Experience	1-13
EEST 110	Introduction to Programmable Logic Controllers	5
EEST 208	Introduction to Embedded Controllers	5
EEST 224	Introduction to Wireless Communications	4
EEST 225	Introduction to Microprocessors	4
TRON 124	Pneumatics and Hydraulics	4
TRON 137	Mechanical Systems	5
TRON 211	Industrial Robotics I	5
TRON 214	Motors & Control Systems	5
	Subtotal: 9-10	

Program Learning Outcomes

Outcomes

Maintain skills for lifelong learning by locating, evaluating and applying relevant information using external resources such as the internet, data books, trade publications and library resources
Function as a member of a team to complete a task in a timely and efficient manner; delegating, organizing and documenting tasks and results.
Operate biomedical equipment with knowledge of biological systems and signals as required to understand the equipment's correct function
Identify, analyze, and integrate the technical equipment requirements with needs of the medical staff and patients
Operate electronic test equipment and tools to analyze and identify functional/non-functional biomedical equipment
Establish professional oral and written business communication skills appropriate in a clinical environment
Read and comprehend blueprints, wiring diagrams, schematic diagrams and service information
Practice safety measures and equipment as required by the FDA, NFPA, NEC, OSHA and others
Display professional, ethical behaviors within the requirements of a clinical setting
Demonstrate effective working relationships with people who are similar or different
Solder or replace defective components using appropriate tools and equipment
Follow all HIPPA laws and guidelines for patient privacy

Broadcasting/Video Production

If you have ever dreamed of working behind the scenes as a camera operator, technical director, chief engineer, editor, Unmanned Aircraft Systems (sUAS) video (drone) pilot, audio engineer, or any other position; then the Bates Broadcasting/Video Production program may be a great fit for you. Former BVP students work in various industries and companies from major TV stations like KOMO, KIRO, KCPQ, and KING to Microsoft studios, Century Link, T-Mobile Park, TVW, Root Sports, Victory Studios, and more throughout the nation.

The BVP curriculum has the rare distinction of being certified by the Society of Broadcasting Engineers (SBE). Students are encouraged to test for the SBE certification upon completion of the program. Whether you like the creative or technical side of broadcasting and digital video production, this program could be your road to an exciting career!

CIP: 10.0202

EPC: 628

Broadcasting/Video Production AAS (90 Credits)

Plan Code: RTBBVAPT

The Broadcasting/Video Production AAS degree requires 68 credits of technical core courses, 7 elective credits, and 15 general education credits. These courses are purposely packaged and scheduled to complete in six quarters. Please consult with your advisor to discuss the Program of Study (PoS) for how courses are organized and taught to meet program requirements.

- 6-quarter program
- Enrollment points: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, web-enhanced, and hands-on courses. Please see course descriptions for more information.
- Students use video studio facilities, portable video cameras/accessories, maintenance shop tools & test equipment, and editing software.
- Many employers require drug tests, and background checks.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Students MUST complete three of the four core class sets AND summer quarter courses

Audio Core (Fall)

BROAD 120	Intro to Digital Audio Recording	5
BROAD 124	Basic Audio Equipment	5
BROAD 155	Characteristics of Sound	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Broadcast Engineering Core (Winter)

BROAD 143	Basic Maintenance & Troubleshooting	5
BROAD 149	Intro to Studio & Field Equipment	3
BROAD 150	Basic Electronics Concepts	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Television Operations Core (Spring)

BROAD 111	Master Control Operations I	5
BROAD 139	Broadcast Station Operations	5
BROAD 148	Control Room Equipment I	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Video Production Core (Fall, Winter, Spring, Summer)

BROAD 132	Intro to Studio and Field Production	5
BROAD 142	Basic Digital Video Editing	5
BROAD 147	Production Process Theory	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Summer Quarter

BROAD 103	BVP Safety Principles	2
BROAD 135	Employment Preparation	3

1 from SET A	Summer Elective (see below)	2
1 from SET B	Summer Elective (see below)	5

Outcomes

Select and effectively use video and audio technology and field production equipment to produce deliverables that meet industry standards.
Install, set up, maintain, and operate audio/video and broadcast equipment.
Follow established production processes for content creation.
Apply legal, ethical, and professional standards that guide media practices.
Demonstrate industry-expected soft skills.
Discuss technological concepts of audio/video and broadcast systems.
Combine production elements such as planning, scripting, storyboarding, budgeting and production.

Electives (7 Credits)

Choose one course from each elective set for a total of 7 credits.

Electives, Set A (2 Credits)

Choose one course:

BROAD 144	Intro to Network A/V Workflows	2
BROAD 154	Introduction to CAD	2
		Subtotal: 2

Electives, Set B (5 Credits)

Choose one course:

BROAD 160	Emerging Technology	5
BROAD 170	Remote/Robotic Camera Systems	5
BROAD 289	Practicum V	5
		Subtotal: 5
		Subtotal: 7

Advanced Tracks (24 Credits)

Choose an Advanced Track in Engineering ***OR*** Video Production

Advanced Track - Engineering

Fall, Winter, Spring, or Summer

BROAD 240	Audio & Video Engineering	4
BROAD 242	Content Delivery Systems	4
BROAD 246	Networking for Audio & Video	4
		Subtotal: 12

Fall, Winter, Spring, or Summer

BROAD 296	Work-Based Learning	2-12
		Subtotal: 12

Advanced Track - Video Production

Winter or Summer Quarter

BROAD 296	Work-Based Learning	2-12
		Subtotal: 12

***BROAD 296 Work-Based Learning by instructor permission only.**

Fall or Spring Quarter

BROAD 218	A/V Pre-Production Applications	4
BROAD 241	Production Capstone I	4
BROAD 284	Practicum IV	4
		Subtotal: 12

Winter or Summer Quarter

BROAD 228	Advanced Editing Projects	4
BROAD 230	Field Production	4
BROAD 232	Production Capstone III	4
		Subtotal: 12

***OR* the alternative:**

Total Credit Hours: 90

Broadcasting/Video Production AAS-T (100 Credits)

Plan Code: RTBBVAAS

The Broadcasting/Video Production AAS-T degree requires 68 credits of technical core courses, 7 elective credits, and 25 general education credits. These courses are purposely packaged and scheduled to complete in six quarters. Please consult with your advisor to discuss the Program of Study (PoS) for how courses are organized and taught to meet program requirements.

- 6-quarter program
- Enrollment points: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, web-enhanced, and hands-on courses. Please see course descriptions for more information.

- Students use video studio facilities, portable video cameras/accessories, maintenance shop tools & test equipment, and editing software.
- Many employers require drug tests, and background check

General Education Requirements

10 credits from the Communications Distribution

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Students MUST complete three of the four core class sets AND summer quarter courses

Audio Core (Fall)

BROAD 120	Intro to Digital Audio Recording	5
BROAD 124	Basic Audio Equipment	5
BROAD 155	Characteristics of Sound	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Broadcast Engineering Core (Winter)

BROAD 143	Basic Maintenance & Troubleshooting	5
BROAD 149	Intro to Studio & Field Equipment	3
BROAD 150	Basic Electronics Concepts	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Television Operations Core (Spring)

BROAD 111	Master Control Operations I	5
BROAD 139	Broadcast Station Operations	5
BROAD 148	Control Room Equipment I	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Video Production Core (Fall, Winter, Spring, Summer)

BROAD 132	Intro to Studio and Field Production	5
BROAD 142	Basic Digital Video Editing	5
BROAD 147	Production Process Theory	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Summer Quarter

BROAD 103	BVP Safety Principles	2
BROAD 135	Employment Preparation	3
1 from SET A	Summer Elective (see below)	2
1 from SET B	Summer Elective (see below)	5

Outcomes

Select and effectively use video and audio technology and field production equipment to produce deliverables that meet industry standards.
Install, set up, maintain, and operate audio/video and broadcast equipment.
Follow established production processes for content creation.
Apply legal, ethical, and professional standards that guide media practices.
Demonstrate industry-expected soft skills.
Discuss technological concepts of audio/video and broadcast systems.
Combine production elements such as planning, scripting, storyboarding, budgeting and production.

Electives (7 Credits)

Choose one course from each elective set for a total of 7 credits.

Electives, Set A (2 Credits)

Choose one course:

BROAD 144	Intro to Network A/V Workflows	2
BROAD 154	Introduction to CAD	2
		Subtotal: 2

Electives, Set B (5 Credits)

Choose one course:

BROAD 160	Emerging Technology	5
BROAD 170	Remote/Robotic Camera Systems	5
BROAD 289	Practicum V	5
		Subtotal: 5
		Subtotal: 7

Advanced Tracks (34 Credits)

Total Credit Hours: 100

Choose an Advanced Track in Engineering ***OR*** Video Production

Advanced Track - Engineering

Fall, Winter, Spring, or Summer		
BROAD 296	Work-Based Learning	2-12
GENED	Sciences-Humanities (p. 54) (p. 53)	5
Fall, Winter, Spring, or Summer		
BROAD 240	Audio & Video Engineering	4
BROAD 242	Content Delivery Systems	4
BROAD 246	Networking for Audio & Video	4
GENED	Sciences-Humanities (p. 54) (p. 53)	5

Advanced Track - Video Production

Winter or Summer Quarter		
BROAD 296	Work-Based Learning	2-12
GENED	Sciences-Humanities (p. 54) (p. 53)	5

***BROAD 296 Work-Based Learning by instructor permission only.**

Fall or Spring Quarter		
BROAD 218	A/V Pre-Production Applications	4
BROAD 241	Production Capstone I	4
BROAD 284	Practicum IV	4
GENED	Sciences-Humanities (p. 54) (p. 53)	5
Winter or Summer Quarter		
BROAD 228	Advanced Editing Projects	4
BROAD 230	Field Production	4
BROAD 232	Production Capstone III	4
GENED	Sciences-Humanities (p. 54) (p. 53)	5

***OR* the alternative:**

Broadcasting/Video Production Certificate of Competency (66 Credits)

Plan Code:RTBBEC45

The Broadcasting/Video Production Certificate of Competency (CoC) is a 4-quarter certificate program that provides students with an overview of video production, broadcast engineering, and digital media. The last of these quarters is during summer focused on safety principles, employment preparation, and at least two elective classes for career exploration. After completing the MPC CoC, students can elect to continue for two additional quarters of advanced MPC classes and earn an associate degree.

- 4-quarter program
- Enrollment points: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, web-enhanced, and hands-on courses. Please see course descriptions for more information.
- Students use video studio facilities, portable video cameras/accessories, maintenance shop tools & test equipment, and editing software.
- Many employers require drug tests, and background checks.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Students MUST complete three of the four core class sets AND summer quarter courses

Audio Core (Fall)		
BROAD 120	Intro to Digital Audio Recording	5
BROAD 124	Basic Audio Equipment	5
BROAD 155	Characteristics of Sound	3

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Broadcast Engineering Core (Winter)

BROAD 143	Basic Maintenance & Troubleshooting	5
BROAD 149	Intro to Studio & Field Equipment	3
BROAD 150	Basic Electronics Concepts	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Television Operations Core (Spring)

BROAD 111	Master Control Operations I	5
BROAD 139	Broadcast Station Operations	5
BROAD 148	Control Room Equipment I	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Video Production Core (Fall, Winter, Spring, Summer)

BROAD 132	Intro to Studio and Field Production	5
BROAD 142	Basic Digital Video Editing	5
BROAD 147	Production Process Theory	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Summer Quarter

BROAD 103	BVP Safety Principles	2
BROAD 135	Employment Preparation	3
1 from SET A	Summer Elective (see below)	2
1 from SET B	Summer Elective (see below)	5

Outcomes

Select and effectively use video and audio technology and field production equipment to produce deliverables that meet industry standards.
Install, set up, maintain, and operate audio/video and broadcast equipment.
Follow established production processes for content creation.
Apply legal, ethical, and professional standards that guide media practices.
Demonstrate industry-expected soft skills.
Discuss technological concepts of audio/video and broadcast systems.
Combine production elements such as planning, scripting, storyboarding, budgeting and production.

Electives (7 Credits)

Choose one course from each elective set for a total of 7 credits.

Electives, Set A (2 Credits)

Choose one course:

BROAD 144	Intro to Network A/V Workflows	2
BROAD 154	Introduction to CAD	2
		Subtotal: 2

Electives, Set B (5 Credits)

Choose one course:

BROAD 160	Emerging Technology	5
BROAD 170	Remote/Robotic Camera Systems	5
BROAD 289	Practicum V	5
		Subtotal: 5

Total Credit Hours: 66

BVP Certificate of Training-Engineering (13 Credits)

Plan Code: RTBECC01

The BVP Certificate of Training-Engineering is a one-quarter overview of broadcast engineering offered in Fall, Winter, and Spring quarters. To earn this certificate, a

student must complete the Core Engineering classes with minimum 2.0 GPA. See the BVP Program of Study for course information.

- 1-quarter certificate program
- Enrollment points: Winter
- This certificate offers online, hybrid, web-enhanced, and hands-on courses. Please see course descriptions for more information.
- Students use video studio facilities, portable video cameras/accessories, maintenance shop tools & test equipment, and editing software.
- Many employers require drug tests, and background checks.

Required Courses

The Broadcasting/Video Production Certificate of Training-Engineering requires 13 credits of technical core courses.

Technical Core (13 Credits)

BROAD 143	Basic Maintenance & Troubleshooting	5
BROAD 149	Intro to Studio & Field Equipment	3
BROAD 150	Basic Electronics Concepts	5

Outcomes
Install, set up, maintain, and operate audio/video and broadcast equipment.
Demonstrate industry-expected soft skills.
Discuss technological concepts of audio/video and broadcast systems.

Total Credit Hours: 13

BVP Certificate of Training- Audio Production (13 Credits)

The Broadcasting/Video Production Certificate of Training-Audio Production is a one-quarter overview of audio production offered in Fall quarter. To earn this certificate, a student must complete the Core Production classes with minimum 2.0 GPA. See the BVP Program of Study for course information.

- 1-quarter certificate program
- Enrollment points: Fall
- This certificate offers online, hybrid, web-enhanced, and hands-on courses. Please see course descriptions for more information.
- Students use audio studio facilities, portable audio equipment/accessories, maintenance shop tools & test equipment, and editing software.
- Many employers require drug tests, and background checks.

Required Courses

The Broadcasing/Video Production Certificate of Training-Video Production requires 13 credits of technical core courses.

Technical Core (13 Credits)

BROAD 120	Intro to Digital Audio Recording	5
BROAD 124	Basic Audio Equipment	5
BROAD 155	Characteristics of Sound	3
	Subtotal: 13	

Outcomes
Select and effectively use video and audio technology and field production equipment to produce deliverables that meet industry standards.
Follow established production processes for content creation.
Demonstrate industry-expected soft skills.
Combine production elements such as planning, scripting, storyboarding, budgeting and production.

BVP Certificate of Training-TV Operations (13 Credits)

The BVP Certificate of Training-TV Operations is a one-quarter overview of TV Operations offered in Spring quarter. To earn this certificate, a student must complete the Core classes with minimum 2.0 GPA. See the BVP Program of Study for course information.

- 1-quarter certificate program
- Enrollment points: Spring
- This certificate offers online, hybrid, web-enhanced, and hands-on courses. Please see course descriptions for more information.
- Students use video studio facilities, portable video cameras/accessories, maintenance shop tools & test equipment, and editing software.

- Many employers require drug tests, and background checks.

Required Courses

The Broadcasing/Video Production Certificate of Training-TV Operations requires 13 credits of technical core courses.

Technical Core (13 Credits)

BROAD 111	Master Control Operations I	5
BROAD 139	Broadcast Station Operations	5
BROAD 148	Control Room Equipment I	3

Outcomes
Select and effectively use video and audio technology and field production equipment to produce deliverables that meet industry standards.
Follow established production processes for content creation.
Demonstrate industry-expected soft skills.
Combine production elements such as planning, scripting, storyboarding, budgeting and production.

Total Credit Hours: 13

BVP Certificate of Training-Video Production (13 Credits)

Plan Code: RTBPCC01

The Broadcasting/Video Production Certificate of Training-Video Production is a one-quarter overview of video production offered in Fall, Winter, and Spring quarters. To earn this certificate, a student must complete the Core Production classes with minimum 2.0 GPA. See the BVP Program of Study for course information.

- 1-quarter certificate program
- Enrollment points: Fall, Winter, Spring, Summer
- This certificate offers online, hybrid, web-enhanced, and hands-on courses. Please see course descriptions for more information.
- Students use video studio facilities, portable video cameras/accessories, maintenance shop tools & test equipment, and editing software.
- Many employers require drug tests, and background checks.

Required Courses

The Broadcasing/Video Production Certificate of Training-Video Production requires 13 credits of technical core courses.

Technical Core (13 Credits)

BROAD 132	Intro to Studio and Field Production	5
BROAD 142	Basic Digital Video Editing	5
BROAD 147	Production Process Theory	4

Outcomes
Select and effectively use video and audio technology and field production equipment to produce deliverables that meet industry standards.
Follow established production processes for content creation.
Demonstrate industry-expected soft skills.
Combine production elements such as planning, scripting, storyboarding, budgeting and production.

Total Credit Hours: 13

Program Learning Outcomes

Outcomes
Select and effectively use video and audio technology and field production equipment to produce deliverables that meet industry standards.
Install, set up, maintain, and operate audio/video and broadcast equipment.
Follow established production processes for content creation.
Apply legal, ethical, and professional standards that guide media practices.
Demonstrate industry-expected soft skills.
Discuss technological concepts of audio/video and broadcast systems.
Combine production elements such as planning, scripting, storyboarding, budgeting and production.

Carpentry

Program Description:

Students prepare for entry-level employment in the construction industry, filling positions such as carpenter, framer, concrete worker, and interior and exterior finisher. Off-campus building and remodeling projects provide opportunities for extensive practical training, giving

students valuable experience in the trade, from estimating construction projects through all phases of construction. This is a pre-apprenticeship program for the South Puget Sound Carpenters Joint Apprenticeship Training Committee.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Carpentry AAS (116 Credits)

Plan Code: CARCAAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program is primarily in-person and hands-on but some courses are hybrid, and online. See course descriptions for more information.
- Students will need the ability to get the different work sites

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

CARPT296 (3 cr.) or CARPT297 (2 cr.) may be substituted for:

- CARPT205
- CARPT112
- CARPT208
- CARPT292 and/or
- WBAS101

*__Note: CARPT296 (3 cr.) & CARPT297 (2 cr.) may only be taken one time each__

Quarter 1

CARPT 101	Carpentry Math	3
CARPT 102	Safety Principles	3
CARPT 103	Prints and Plans	4
CARPT 104	Construction Materials	2
CARPT 105	Tools and Equipment	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

CARPT 106	Power Tools	5
CARPT 107	Optical Instruments	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

WBAS 101 (p. 394)	**Welding Basics**	**5**
	OR	
CARPT 296 (p. 222)	**Work-Based Learning Experience**	**3**
CARPT 297 (p. 222)	**Work-Based Learning Seminar**	**2**

Quarter 3

CARPT 108	Plot Plans and Building Layout	3
CARPT 110	Foundation	3
CARPT 111	Foundation Footings	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

(p. 394)**CARPT 112** (p. 220)	**Foundation Walls**	**5**
	OR	
CARPT 296 (p. 222)	**Work-Based Learning Experience**	**3**
CARPT 297 (p. 222)	**Work-Based Learning Seminar**	**2**

Quarter 4

CARPT 109	Introduction to Framing	4
CARPT 201	Floor Systems	5
CARPT 202	Wall and Ceiling Construction	5
CARPT 203	Stairs	3
(p. 394) (p. 220)**CARPT 205** (p. 221)	**Roofing Construction**	**5**
	OR	
CARPT 296 (p. 222)	**Work-Based Learning Experience**	**3**
CARPT 297 (p. 222)	**Work-Based Learning Seminar**	**2**

Quarter 5

CARPT 204	Introduction to Roofing	3
CARPT 206	Introduction to Exterior Finish Methods	4
CARPT 207	Exterior Doors and Windows	5
(p. 394) (p. 220) (p. 221)**CARPT 208** (p. 221)	**Siding**	**5**
	OR	
CARPT 296 (p. 222)	**Work-Based Learning Experience**	**3**
CARPT 297 (p. 222)	**Work-Based Learning Seminar**	**2**

Quarter 6

CARPT 209	Introduction to Interior Finish Methods	3
CARPT 210	Interior Floors, Walls and Ceilings	4
CARPT 211	Interior Doors and Windows	5
CARPT 213	Employment Preparation	2
(p. 394) (p. 220) (p. 221) (p. 221)**CARPT 292** (p. 222)	**Independent Projects**	**2**
	OR	
CARPT 296 (p. 222)	**Work-Based Learning Experience**	**3**
CARPT 297 (p. 222)	**Work-Based Learning Seminar**	**2**

Total Credit Hours: 116

Carpenter Technician Certificate of Competency (77 Credits)

Plan Code: CARCEC45

4 quarter Certificate of Competency

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Quarter 1

CARPT 101	Carpentry Math	3
CARPT 102	Safety Principles	3
CARPT 103	Prints and Plans	4
CARPT 104	Construction Materials	2
CARPT 105	Tools and Equipment	4
CARPT 208	Siding	5

Quarter 2

CARPT 106	Power Tools	5
CARPT 211	Interior Doors and Windows	5
CARPT 292	Independent Projects	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

CARPT 110	Foundation	3
CARPT 111	Foundation Footings	3

CARPT 112	Foundation Walls	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

CARPT 201	Floor Systems	5
CARPT 202	Wall and Ceiling Construction	5
CARPT 203	Stairs	3
CARPT 205	Roof Construction	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Electives

Carpenter Technician Certificate of Competency (77 Credits)

CARPT 296	Work-Based Learning Experience	1-13
CARPT 297	Work-Based Learning Seminar	2

Basic Carpentry I Certificate of Training (16 Credits)

Plan Code: CARC1C01

1 quarter Certificate of Training

Required Courses:

Basic Carpentry I Certificate of Training (16 Credits)

CARPT 101	Carpentry Math	3
CARPT 102	Safety Principles	3
CARPT 103	Prints and Plans	4
CARPT 104	Construction Materials	2
CARPT 105	Tools and Equipment	4

Basic Carpentry II Certificate of Training (16 Credits)

Plan Code: CARC2C01

1 quarter Certificate of Training

Required Courses:

Basic Carpentry II Certificate of Training (16 Credits)

CARPT 106	Power Tools	5
CARPT 107	Optical Instruments	3
WBAS 101	Welding Basics	8

Concrete Foundations Certificate of Training (14 Credits)

Plan Code: CAROFC01

1 quarter Certificate of Training

Required Courses:

Concrete Foundations Certificate of Training (14 Credits)

CARPT 108	Plot Plans and Building Layout	3
CARPT 110	Foundation	3
CARPT 111	Foundation Footings	3
CARPT 112	Foundation Walls	5

Wood Framing Certificate of Training (22 Credits)

Plan Code: CARWFC20

1 quarter Certificate of Training

Required Courses:

Wood Framing Certificate of Training (22 Credits)

CARPT 109	Introduction to Framing	4
CARPT 201	Floor Systems	5
CARPT 202	Wall and Ceiling Construction	5
CARPT 203	Stairs	3
CARPT 205	Roof Construction	5

Exterior Finishing Certificate of Training (17 Credits)

Plan Code: CAREFC01

1 quarter Certificate of Training

Required Courses:

Exterior Finishing Certificate of Training (17 Credits)		
CARPT 204	Introduction to Roofing	3
CARPT 206	Introduction to Exterior Finish Methods	4
CARPT 207	Exterior Doors and Windows	5
CARPT 208	Siding	5

Electives

Exterior Finishing Certificate of Training (17 Credits)		
CARPT 296	Work-Based Learning Experience	1-13
CARPT 297	Work-Based Learning Seminar	2

Interior Finishing Certificate of Training (16 Credits)

Plan Code: CARIFC01

1 quarter Certificate of Training

Required Courses

Interior Finishing Certificate of Training (16 Credits)		
CARPT 209	Introduction to Interior Finish Methods	3
CARPT 210	Interior Floors, Walls and Ceilings	4
CARPT 211	Interior Doors and Windows	5
CARPT 213	Employment Preparation	2
CARPT 292	Independent Projects	2

Electives

Interior Finishing Certificate of Training (16 Credits)		
CARPT 296	Work-Based Learning Experience	1-13
CARPT 297	Work-Based Learning Seminar	2

Program Learning Outcomes

Estimate materials and labor necessary to complete a building project
Identify, select and supervise application of construction materials
Demonstrate sustainable building practices and material application
Interpret basic designs and apply sound construction principles
Interpret and apply codes, regulations and contract documents
Select and maintain construction site tools and equipment
Draw, read and interpret drawings and specifications
Apply the required safety standards in construction
Plan, coordinate, schedule and control projects
Use hand and power tools safely and efficiently
Interpret technical information from blueprints
Work as a productive carpentry team member
Survey and investigate construction sites
Take off quantities and estimate costs
Perform general carpentry skills

Certified Medical Assistant

6 quarter AAS

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

The Certified Medical Assistant program prepares students for both front-office clerical and back-office clinical medical assistant responsibilities by providing cognitive (knowledge), psychomotor (skills), and affective (behavior) learning competencies. Students prepare for careers as integral members of a health care team in various outpatient settings. Competency-based activities in the program provide extensive hands-on practice for students with skills to assist physicians with direct patient care. The program also provides extended learning opportunities for persons previously or currently employed in related professions. In addition, work-based learning experiences are available in many medical settings that support the theory presented in the classroom.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Certified Medical Assistant AAS (102 Credits)

Plan Code: MLAMAAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 10:1
- Enrollment point: Fall, Spring
- This is a hybrid course with some classes being offered fully online, with over half the classes being in-person.
- Students will being using a full phlebotomy lab with equipment; lab with CLIA-waved testing equipment; mannequin body parts for procedure simulation; BP cuff and stethoscopes.
- Highly recommended to register for CMA (AAMA) National Exam after AAS degree completion
- Students will need to purchase specific color scrubs, stethoscope, penlight, pocket medical dictionary, BP cuff (optional)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
AMA 110	Computer Basics	1
AMA 111	Introduction to Word Processing	3
AMA 112	Fundamentals of Medical Terminology	4
AMA 113	Healthcare Communications	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 2		
AMA 116	Medical Office Procedures	3
AMA 117	Beginning Medical Terminology	4
CMA 114	Introduction to the Health Care Profession	3
CMA 150	Medical Office Clinical Applications I	6
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
AMA 119	Advanced Medical Office Procedures	3
AMA 120	Introduction to Spreadsheets	3
AMA 121	Intermediate Medical Terminology	4
CMA 151	Medical Office Clinical Applications II	6
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
AMA 123	Electronic Health Records	4
AMA 124	First Aid/CPR	1
AMA 127	Medical Insurance and Reimbursement	4
AMA 128	Advanced Medical Terminology - Pathophysiology	4
CMA 152	Medical Office Laboratory Procedures	4
Quarter 5		
AMA 126	Advanced Administrative Medical Concepts	4
AMA 129	Medical Coding Applications	4
AMA 133	HIV/BBP Prevention Education	1
CMA 153	Human Diseases and Pharmacology	3
Quarter 6		
AMA 135	Practical Applications	3
CMA 154	Medical Assistant Practicum	6
CMA 155	Medical Assistant Exam Review	2
CMA 156	Job Readiness & Preparation	2

Program Learning Outcomes

1. Perform administrative & clinical medical procedures
2. Communicate (written, verbal and non-verbal) with diverse patients and staff using appropriate medical terminology, confidentiality and empathy

3. Demonstrate ethical and legal behaviors when performing routine patient procedures in accordance with regulations, policies, laws and patient right
4. Apply quality control measures in following health and safety policies and procedures to prevent illness and injury when performing fundamental procedures and tasks
5. Record vital signs and conduct a variety of diagnostic tests, such as EKGs
6. Draw blood samples, giving injections and removing sutures as directed by the physician
7. Successfully complete all criteria set forth by Commission on Accreditation of Allied Health Education Programs (CAAHEP) and the American Association of Medical Assistants (AAMA) for students to sit for the AAMA exam to gain the CMA credentials and state licensure.

Cloud Computing and Networking Technology

Program Description:

Cloud Architects and Computer Network Systems Technicians link the hardware and software that comprise computer data communications networks. They install, configure and maintain cloud solutions to meet business needs and secure systems. Cloud Architect and Network Administration positions are needed in all industries due to the ongoing movement towards could computing. Students are encouraged to spend additional hours of study to obtain CompTIA A+, Security +, Cisco CCNA, CyberOps Associate, Amazon Web Services Certified Solutions Architect, Cloud Practitioner.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Program Learning Outcomes:

1. Design a small or medium sized computer network including media types, end devices and interconnecting devices that meets a customer's specific needs
2. Perform basic tasks expected of a network administrator including management of user accounts, shared resources and network security
3. Perform basic configurations on routers and Ethernet switches
4. Perform operational tasks within a Linux environment, such as the creation and management of files, folders and accounts
5. Perform standard DNS and DHCP management operations, such as setup, modification and troubleshooting
6. Construct simple computer scripts that accomplish a given task
7. Define basic network security issues and possible solutions

Cloud Computing and Networking Technology AAS (91 Credits)

Plan Code: CTCCTAPT

EPC: 608

The Cloud Computing and Networking Technology (CCNT) Associate in Applied Science (AAS) represents a mix of courses that lead to various career paths. This six-quarter program prepares students for rewarding careers as cloud solutions architects, cloud administrators, computer technicians, computer network technicians, and computer domain administrators. Enrollments are in the fall and spring quarters. Most of the courses are hybrid (part onsite, part online) to engage in hands-on learning and deepen skills and knowledge via digital learning activities. Be a part of the new frontier in computing!

Students learn:

- Computer hardware
- Client/server operating systems
- Network infrastructure systems
- Scripting
- Security
- Cloud architecting and administration

Students prepare for these industry certifications:

- Computing Technology Industry Association (CompTIA) A+
- CompTIA Net+

- Cisco Certified Network Associate (CCNA)
- Microsoft Technology Associate (MTA)
- Amazon Web Services (AWS) Solutions Architect
- AWS SysOps Administrator
- AWS Cloud Practitioner

Outcomes

Design a small- or medium-sized computer network including media types, end devices, and interconnecting devices that meets a customer's specific needs.
Perform basic tasks expected of a network administrator including management of user accounts, shared resources network services, and security.
Install, manage, maintain, and troubleshoot Windows and Linux operating systems.
Construct simple computer scripts that accomplish a given task.
Perform basic configurations on routers and Ethernet switches.
Define basic network security issues and possible solutions.
Create and manage business solutions in a cloud environment.

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Cloud Computing and Networking Technology AAS

Quarter 1		
COLL 101	College Success	5
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
Quarter 2		
CCNT 110	Fundamentals of Linux	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
CCNT 120	Cloud Computing	4
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking Fundamentals	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
CCNT 150	Server I	4
CCNT 160	Cisco Routing & Switching	4
INFO 205	Security I	5
Quarter 5		
CCNT 210	Server II	4
CCNT 220	Cisco Enterprise Networking, Security & Automation	4
INFO 206	Security II	5
Quarter 6		
CCNT 230	Cloud Administration	4
CCNT 240	Scripting	4
CCNT 292	Independent Projects	4

Total Credit Hours: 91

Cloud Computing and Networking Technology AAS-T (96 Credits)

Plan Code: CTCCTAAS

6 quarter AAST

Outcomes

Design a small or medium sized computer network including media types, end devices and interconnecting devices that meets a customers specific needs
Perform basic tasks expected of a network administrator including management of user accounts, shared resources and network security
Perform operational tasks within a Linux environment, such as the creation and management of files, folders and accounts
Perform standard DNS and DHCP management operations, such as setup, modification and troubleshooting
Construct simple computer scripts that accomplish a given task
Perform basic configurations on routers and Ethernet switches
Define basic network security issues and possible solutions

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Cloud Computing and Networking Technology AAS

Quarter 1

INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 2

CCNT 110	Fundamentals of Linux	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 3

CCNT 120	Cloud Computing	4
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking Fundamentals	4
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 4

CCNT 150	Server I	4
CCNT 160	Cisco Routing & Switching	4
INFO 205	Security I	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 5

CCNT 210	Server II	4
CCNT 220	Cisco Enterprise Networking, Security & Automation	4
INFO 206	Security II	5

Quarter 6

CCNT 230	Cloud Administration	4
CCNT 240	Scripting	4
CCNT 292	Independent Projects	4

Total Credit Hours: 96

Cloud Computing Technician Certificate of Training (53 Credits)

Plan Code: CTCCUC45

EPC: 608

As cloud computing continues to grow the need for qualified people to build, manage, and troubleshoot cloud environments is expected to grow as well. This three-quarter certificate program provides training in basic computing, computer networking, and cloud architecting. The courses are designed to prepare the learner for the industry-recognized Computing Technology Industry Association (CompTIA) A+ certification, Cisco Certified Network Associate (CCNA), and Amazon Web Services Solutions Architect. Potential jobs for graduates include Computer Support Technician, Network Support Technician, and Cloud Solutions Architect.

Outcomes

Design a small or medium-sized computer network including media types, end devices, and interconnecting devices that meets a customer's specific needs.
Perform basic tasks expected of a network administrator including management of user accounts, shared resources, and network security.
Perform basic configurations on routers and Ethernet switches.
Define basic network security issues and possible solutions.
Create business solutions in a cloud environment.

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
CCNT 140	Cisco Networking Fundamentals	4
COLL 101	College Success	5
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
Quarter 2		
CCNT 160	Cisco Routing & Switching	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
CCNT 120	Cloud Computing	4
CCNT 130	Server Administration	4
CCNT 220	Cisco Enterprise Networking, Security & Automation	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Total Credit Hours: 53

IT Technician Certificate of Training (26 Credits)

Plan Code: CTCITC20

EPC: 608

This two-quarter certificate program gives the learner the skills required for entry-level Information technology (IT) Technician jobs. Through lectures and laboratory exercises, students learn computer hardware, computer operating systems, network/Internet communication, and computer applications. The curriculum prepares you to take the industry-recognized Computing Technology Industry Association (CompTIA) A+ certification exam. Potential jobs include Computer Support Help Desk, Information Technology Field Technician, and Computer Network Technician.

IT Technician Certificate of Training (26 Credits)

Quarter 1		
CCNT 140	Cisco Networking Fundamentals	4
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
Quarter 2		
CCNT 160	Cisco Routing & Switching	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4

Outcomes

Configure connectivity for computers, networks, and mobile systems while applying security principles, system and network vulnerabilities, and common mitigation practices to industry standards.
Design a small- or medium-sized computer network including media types, end devices, and interconnection devices that meets a customer's specific needs.
Develop configuration solutions for technical issues with computers, laptops, mobile devices, and networks while balancing business needs to industry standards.
Perform basic configurations on routers and Ethernet switches.
Perform effective procedures to install, diagnose, configure, support, and troubleshoot computer-based hardware and mobile devices to industry standards.

Total Credit Hours: 26

Commercial Truck Driving

Program Description:

Students prepare for entry-level employment as commercial truck drivers with the goal of earning their Class A or Class B Commercial Drivers License (CDL) with the Doubles/Triples, Tanker and Hazardous Materials endorsements. The Commercial Truck Driving program prepares future commercial motor vehicle operators for their Washington State Department of Licensing tests by providing classroom instruction, closed range and public road driving practice, backing skills preparation and commercial vehicle inspection (Pre-Trip) training. Bates Technical College utilizes a high tech commercial truck simulator. Students train on both manual and automatic transmission commercial vehicles.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Program Learning Outcomes:

1. Learn, develop and demonstrate the skills tested in the Commercial Drivers License tests conducted by the Washington State Department of Licensing.
2. Exhibit an ability to think critically about transportation problems, communicate effectively, and perform as an accountable professional
3. Demonstrates honesty, integrity and reliability.
4. Meets and maintains employment eligibility criteria, such as drug/alcohol-free status, clean driving record, etc.
5. Display professional, ethical behaviors as a commercial motor vehicle driver
6. Construct and maintain required CMV logbook/DVIR documentation
7. Demonstrates proper hooking/unhooking of trailers, cargo handling, weight distribution and securement safely by utilizing common CMV tools
8. Recognize, avoid or solve potential hazardous situations related to truck driving.
9. Plan or adjust routes based on changing conditions to minimize fuel consumption and carbon emissions.

Commercial Truck Driving Class A Certificate of Training (21 Credits)

Plan Code: TBDCTC20

- 5-week Certificate of Training
- Maximum class size:6
- Enrollment point: Fall, Winter, Spring, Summer
- This certificate offers primarily face-to-face instruction with some online, hybrid, and web-enhanced courses. See course descriptions for details.
- Commercial truck driving boasts 5 class A trucks, 7 trailers, and a closed course CDL driving range.
- Fees include driving record, Medical cert., Permit fees, skill test, and CDL issurance.
- Full time CDL training program with very high pass rate.

Required Courses

Commercial Truck Driving Class A Certificate of

Training (21 Credits)

TRUCK 201	CDL Testing Introduction	1
TRUCK 202	CDL Simulator	1
TRUCK 203	Atlas, Logs, Hours of Service	1
TRUCK 204	Hazardous Materials Safety Training	2
TRUCK 205	Yard Operations	3
TRUCK 206	Pre-Trip Training	3
TRUCK 207	Range Driving	3
TRUCK 208	Backing Exercises	3
TRUCK 209	Road Driving	2
TRUCK 210	Proficiency and CDL Testing	2

Commercial Truck Driving Class B Certificate of Training (8 Credits)

Plan Code: TBDCBC01

- Five Week Certificate of Training
- Maximum class size: Six students. Two class starts per quarter. See class schedule for class dates and times.
- Enrollment point: Fall, Winter, Spring, Summer
- This certificate offers primarily face-to-face instruction with some online, hybrid, and web-enhanced courses.
- Commercial truck driving boasts 6 Class B box trucks.
- Fees include driving record, Medical cert., Permit fees, skill test, and CDL issurance
- Full time CDL training program with very high pass rate.

Required Courses

Commercial Truck Driving Class B Certificate of Training (8 Credits)

TRUCK 120	Commercial Truck Driving - Class B	8

Culinary Arts

CIP Code: 12.0503

Program Description:

Students prepare for a variety of careers in the culinary arts profession and for advanced education at other culinary institutions. Graduates receive a broad base of skills and are well prepared for a variety of entry-level culinary jobs. Students work in all aspects of the dining facilities on campus, planning and preparing meals and catering banquet functions. Instruction includes food planning and preparation, and serving and cleanup.

- Culinary Arts with an AAS degree will:
- Obtain certification from the American Culinary Federation as a Certified Culinarian
- Be Certified as ServSafe Food Manger
- This program is certified by the American Culinary Federation (ACF)
- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Spring
- This degree offers online, hybrid, web-enhanced, and face-to-face courses. Please see course descriptions for more information.
- Fully operational culinary arts facility with full restaurant equipment in kitchens and dining areas.
- Students are responsible for purchasing a Professional Chef Tool Kit, including knives, uniforms, non-slip shoes, and other food preparation tools. Student discounts available through approved vendors.
- For Technical High School students, books, exam vouchers for taking the servsafe test are provided, and the knife kit is loaned to THS students while they are in the program.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Culinary Arts AAS (118 Credits)

Plan Code: CACCAAPT

While training in the culinary arts program, students learn foundational kitchen techniques. International cooking styles, and knife skills. Hands-on cooking classes cover skills like sauce preparation, baking, pastry techniques, and menu planning. While working in all aspects of the dining facilities on campus and off with planning and preparing for events and preparing meals and catering banquet functions.

The Culinary Arts (AAS) degree prepares Bates technical college students in a variety of careers in culinary arts, hospitality management or culinary arts management. Graduates receive a broad base of skills and are well prepared for a variety of entry-level positions

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

CARTS 101	Intro Fundamentals to Culinary Arts	6
CARTS 104	Customer Service	3
CARTS 105	Garde Manger I	1
CARTS 154	SERVSAFE SANITATION	3
CARTS 155	Nutrition	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

CARTS 106	Breakfast Methods	2
CARTS 111	Introduction to Baking	5
CARTS 150	Cooking Techniques	6
CARTS 151	Cooking Techniques II	6
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

CARTS 112	Advanced Cooking Techniques	5
CARTS 152	Introduction to Food Truck	5
CARTS 153	Mobile Food Operations	6
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

CARTS 201	Menu Development	2
CARTS 202	Protein Identification/Utilization	3
CARTS 250	Catering/Banquets	6
CARTS 252	Regional Cuisines of North America	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53) if not already taken	

Quarter 5

CARTS 204	Pastries and Plated Deserts	5
CARTS 253	Sustainability/Organic Foods	4
CARTS 254	Modern Bread Techniques	3
CARTS 258	Garde Manger II	5
GENED	Sciences-Humanities (p. 53) if not already taken	

Quarter 6

CARTS 211	Student Practical	5
CARTS 213	Wines/Spirits	4
CARTS 255	Culinary Trends	2
CARTS 256	Intro to Management	4
CARTS 257	Culinary Flavor Profiles	5
GENED	Sciences-Humanities (p. 53) if not already taken	

Subtotal: 118

Electives

CARTS 291	Practical Applications	1-13
CARTS 292	Independent Project I	1-5
CARTS 293	Independent Project II	1-5
CARTS 294	Independent Project III	1-5
CARTS 296	WORK-Based Learning Experience	1-13

Hospitality-Line Cook Certificate of Training (32 Credits)

Plan Code: CACCLC20

2 quarter Certificate of Training

Required Courses

Quarter 1		
CARTS 101	Intro Fundamentals to Culinary Arts	6
CARTS 104	Customer Service	3
CARTS 105	Garde Manger I	1
CARTS 154	SERVSAFE SANITATION	3
Quarter 2		
CARTS 106	Breakfast Methods	2
CARTS 111	Introduction to Baking	5
CARTS 150	Cooking Techniques	6
CARTS 151	Cooking Techniques II	6

Total Credit Hours: 32

Program Learning Outcomes

1. Manage tasks in a challenging and changing culinary food preparation environment.
2. Demonstrate food safety and sanitation practices throughout the program and in the culinary industry.
3. Perform all forms of cooking methodologies using industry-level skills and knowledge.
4. Apply professional standards and conduct that meet the American Culinary Federation Education Foundation Accrediting Commission requirements.
5. Identify and adjust to workplace differences in order to operate collaboratively and effectively in a food service setting
6. Demonstrate an understanding of scaling and measuring techniques.
7. Apply principles and practices of sustainability in respect of the process and the health of the planet for future generations.

Cybersecurity

CIP: 11.1003

EPC: 506

6 quarter AAS

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

Build foundational IT skills with focus on network security. Prepare for a career to assess the security needs of computer and network systems. Investigate deviations from acceptable configurations, identify computer and network security vulnerabilities, solve problems, make decisions to recommend the appropriate defensive countermeasures. Implement adequate measures to reduce risks to a level conferring to compliance regulations. Graduates build skills in problem-solving, attention to detail, communication, and teamwork. Note: Students must possess basic keyboarding/word processing skills prior to enrollment in the program.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Cybersecurity AAS (95 Credits)

Plan Code: CISCYAPT

The Cybersecurity Associate in Applied Science (AAS) prepares its graduates for a rapidly changing and in-demand field of information technology security. This six-quarter program provides a solid foundation on information technology administration and seamlessly integrates the principles and ethical standards expected of cybersecurity professionals. Students are trained in the fields of Security +, CySA+, N|DE, Linux, Cisco, and E|HE. Students explore system hardware, software, networking, cisco devices, and virtualization.

Embedded certificates focus on skills sought by the Computing Technology Industry Association (CompTIA) and the International Council of Electronic Commerce Consultants (E-Council) exams. Students can prepare themselves for industry certifications as well as internship opportunities through exclusive corporate and public partnerships with the program.

Courses are mostly delivered via hybrid (part onsite, part online) and online modalities. Students participate in hands-on learning through coursework and in a state-of-the-art cyber lab while on campus as well as engage in digital learning activities. Students will be responsible for

either having their own laptop or checking one out from the college. They will need access to the Internet and to purchase 8GB+ USB, books, and Testout access.

Outcomes

Communicate effectively with diverse audiences across all levels and demonstrate an understanding of the value of diversity and community.
Communicate an understanding of professional and ethical responsibility as it relates to legal liability in information technology and business.
Demonstrate critical thinking to support integrity, confidentiality, availability of data, and information.
Demonstrate technical proficiency in applying procedures to operate more securely, efficiently, and effectively using decision-making strategies to understand the needs and limitations of business and information technology.
Implement and evaluate computer-based solutions to meet requirements of hardware, operating system, cloud, and security infrastructure.
Collect and analyze data from a variety of sources to identify and report events that occur or might occur within the network to protect data information systems and networks from vulnerabilities and threats.
Investigate deviations from acceptable configurations, identify security vulnerabilities, solve problems, make decisions to recommend appropriate defensive countermeasures.

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Cybersecurity AAS (95 Credits)

Quarter 1		
COLL 101	College Success	5
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
Quarter 2		
CYBR 111	Cybersecurity OS Fundamentals	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
CYBR 201	Information Security I	5
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking Fundamentals	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
CCNT 160	Cisco Routing & Switching	4
CYBR 110	Ethical Hacking Essentials	5
CYBR 202	Information Security II	5
Quarter 5		
CYBR 209	Network Defense Essentials	5
CYBR 210/SOFT 204	Intro to Python for Cybersecurity	4
CYBR 212	Cybersecurity Analyst I	5
Quarter 6		
CYBR 213	Cybersecurity Analyst II	5
CYBR 214/DATA 101	SQL Database Fundamentals	4
CYBR 290	Independent Project	4

Total Credit Hours: 95

Cybersecurity AAS-T (105 Credits)

Plan Code: CISCYAAS

EPC: 506

The Cybersecurity Associate in Applied Science-Transfer (AAS) balances preparation for direct employment and transfer to a bachelor of applied science (BAS) program in select colleges. This six-quarter program provides a solid foundation on information technology administration, integrates the principles and ethical standards expected of cybersecurity professionals, and requires a purposefully selected amount of general education courses to meet transfer requirements. The technical core of the program trains students in the fields of Security +, CySA+, N|DE, Linux, Cisco, and E|HE. Students explore system hardware, software, networking, cisco devices, and virtualization.

Embedded certificates focus on skills sought by the Computing Technology Industry Association (CompTIA) and the International Council of Electronic Commerce Consultants (E-Council) exams. Students can prepare themselves for industry certifications as well as internship opportunities through exclusive corporate and public partnerships with the program.

Courses are mostly delivered via hybrid (part onsite, part online) and online modalities. Students participate in hands-on learning through coursework and in a state-of-the-art cyber lab while on campus as well as engage in digital learning activities. Students will be responsible for either having their own laptop or checking one out from the college. They will need access to the Internet and to purchase 8GB+ USB, books, and Testout access.

Cybersecurity AAS-T differs from its Cybersecurity Associate in Applied Science (AAS) counterpart in the number and focus of technical core courses as well as the number of general education credits required to earn each credential. Consult with your advisor to determine the best option given your career and academic goals.

Outcomes

Communicate effectively with diverse audiences across all levels and demonstrate an understanding of the value of diversity and community.
Communicate an understanding of professional and ethical responsibility as it relates to legal liability in information technology and business.
Demonstrate critical thinking to support integrity, confidentiality, availability of data, and information.
Demonstrate technical proficiency applying procedures to operate more securely, efficiently, and effectively using decision-making strategies to understand the needs and limitations of business and information technology.
Implement and evaluate computer-based solutions to meet requirements of hardware, operating system, cloud, and security infrastructure.
Collect and analyze data from a variety of sources to identify and report events that occur or might occur within the network to protect data information systems and networks from vulnerabilities and threats.
Investigate deviations from acceptable configurations, identify security vulnerabilities, solve problems, make decisions to recommend appropriate defensive countermeasures.

General Education Requirements

10 credits from the Communications Distribution

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Cybersecurity AAST (105 Credits)

Quarter 1		
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5
Quarter 2		
CYBR 111	Cybersecurity OS	4

	Fundamentals	
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 3

CYBR 201	Information Security I	5
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking Fundamentals	4
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 4

CYBR 110	Ethical Hacking Essentials	5
CYBR 202	Information Security II	5
CCNT 160	Cisco Routing & Switching	4
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 5

CYBR 209	Network Defense Essentials	5
CYBR 210/SOFT 204	Intro to Python for Cybersecurity	4
CYBR 212	Cybersecurity Analyst I	5
GENED	Sciences-Humanities (p. 54) (p. 54)	5

Quarter 6

CYBR 213	Cybersecurity Analyst II	5
CYBR 214/DATA 101	SQL Database Fundamentals	4
CYBR 290	Independent Project	4

Total Credit Hours: 105

Network System Support Certificate of Competency (68 Credits)

Plan Code: SNLNSC45

EPC:506

The Cybersecurity Network System Support Certificate of Competency (CoC) is a four-quarter program. It provides a foundation on information technology (IT) and administration with an introduction to the world of cybersecurity. Students explore system hardware, software, networking, cisco devices, and virtualization. They examine core principles of information security. The course focuses on skills and knowledge sought by the Computing Technology Industry Association (CompTIA) and the International Council of Electronic Commerce Consultants (E-Council) exams. Students A+, Cisco, Windows Administration, Linux, Security+, and E|HE.

Enrollments are in the fall and spring quarters. This program offers hybrid (part onsite, part online) and online courses. Refer to individual courses for detailed descriptions. Students need a laptop, Internet access, 8GB+ USB, books, Testout Access, and an EC-Council Voucher purchase.

Outcomes

Communicate effectively with diverse audiences across contexts and demonstrate an appreciation of the value of diversity and community.
Demonstrate professional and ethical responsibility as it relates to legal liability in information technology and business.
Implement and evaluate computer-based solutions to meet hardware, operating system, cloud, and security infrastructure requirements.
Recommend processes that balance governance, risk, and compliance.
Collect and analyze data from a variety of sources to identify and report actual and probable events within the network to protect data information systems and networks from vulnerabilities and threats.
Investigate deviations from acceptable configurations, identify security vulnerabilities, solve problems, make decisions to recommend appropriate defensive countermeasures.

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Network System Support CoC (68 Credits)

Quarter 1		
COLL 101	College Success	5
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
Quarter 2		
CYBR 111	Cybersecurity OS Fundamentals	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
CYBR 201	Information Security I	5
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking Fundamentals	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
CYBR 110	Ethical Hacking Essentials	5
CYBR 202	Information Security II	5
CCNT 160	Cisco Routing & Switching	4

Total Credit Hours: 68

Computer Support Certificate of Training (26 Credits)

Plan Code: CISCUC20

EPC:506

The Cybersecurity Computer Support Certificate of Training (CoT) provides a foundation for Information Technology Helpdesk functionality and processes. Students explore system hardware, software, networking, virtualization, and the Linux operating system. Courses focus on skills and knowledge sought by the Computing Technology Industry Association (CompTIA) exam.

Computer Support Certificate of Training (26 Credits)

Quarter 1		
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
Quarter 2		
CYBR 111	Cybersecurity OS	4

	Fundamentals	
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4

Outcomes

Communicate effectively with diverse audiences across contexts and demonstrate an appreciation of the value of diversity and community.
Demonstrate professional and ethical responsibility as it relates to legal liability in information technology and business.
Demonstrate technical proficiency applying procedures to operate more securely, efficiently, and effectively using decision-making strategies to understand the needs and limitations of business and information technology.
Implement and evaluate computer-based solutions to meet hardware, operating system, cloud, and security infrastructure requirements.
Collect and analyze data from a variety of sources to identify and report actual and probable events within the network to protect data information systems and networks from vulnerabilities and threats.
Investigate deviations from acceptable configurations, identify security vulnerabilities, solve problems, and make decisions to recommend appropriate defensive countermeasures.

Total Credit Hours: 26

Program Learning Outcomes

Outcomes

Communicate effectively with diverse audiences across all levels and demonstrate an understanding of the value of diversity and community.
Communicate an understanding of professional and ethical responsibility as it relates to legal liability in information technology and business.
Demonstrate critical thinking to support integrity, confidentiality, availability of data, and information.
Demonstrate technical proficiency in applying procedures to operate more securely, efficiently, and effectively using decision-making strategies to understand the needs and limitations of business and information technology.
Implement and evaluate computer-based solutions to meet requirements of hardware, operating system, cloud, and security infrastructure.
Collect and analyze data from a variety of sources to identify and report events that occur or might occur within the network to protect data information systems and networks from vulnerabilities and threats.
Investigate deviations from acceptable configurations, identify security vulnerabilities, solve problems, make decisions to recommend appropriate defensive countermeasures.

Dental Assisting

CIP Code

51.0601

Students prepare for careers as chair side dental assistants, dental office managers, and infection control specialists. The program is designed in accordance with American Dental Association guidelines and is fully accredited by the Commission on Dental Accreditation. After completing industry-specific competencies, students may take the Dental Assisting national board examination to earn nationally recognized credentials as a certified dental assistant.

- 4-quarter AAS and CoC
- Maximum class size: 12
- Student to teacher ratio: 1:12, 1:6 for Radiology
- Enrollment point: Fall and Spring
- This program offers primarily hybrid courses. See course descriptions for more information.
- Students will be learning in a fully operational dental office environment
- Students responsible for purchasing Dental Toolkit with expendable supplies, uniform, and textbooks.
- Following completion of program and successful completion of all three components of the Dental Assisting National Board Exam (DANB) students will obtain the credential "Certified Dental Assistant"

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Dental Assisting AAS (90 Credits)

Plan Code: DEADAAPT

4-5 quarter AAS

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

DNTA 101	Dental Sciences I	5
DNTA 102	Introduction to Chairside Assisting	5
DNTA 103	Dental Materials I	4
DNTA 112	Biomedical Sciences	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

DNTA 115	Chairside Skills	6
DNTA 116	Dental Sciences II	4
DNTA 117	Dental Materials II	5
DNTA 144	Dental Radiology	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

DNTA 123	Specialty Skills	5
DNTA 125	Office Administration	5
DNTA 126	Advanced Chairside Skills	6
DNTA 135	Practical Lab Applications	3
DNTA 148	Advanced Dental Radiography	5

Quarter 4

DNTA 151	Clinical Experience I	5
DNTA 154	Clinical Experience II	5
DNTA 155	Clinical Seminar	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Total Credit Hours: 90

Dental Assisting Certificate of Competency - 75 Credits

4 quarter CoC

Required Courses

Quarter 1

DNTA 101	Dental Sciences I	5
DNTA 102	Introduction to Chairside Assisting	5
DNTA 103	Dental Materials I	4

DNTA 112	Biomedical Sciences	5
Quarter 2		
DNTA 115	Chairside Skills	6
DNTA 116	Dental Sciences II	4
DNTA 117	Dental Materials II	5
DNTA 144	Dental Radiology	5
Quarter 3		
DNTA 123	Specialty Skills	5
DNTA 125	Office Administration	5
DNTA 126	Advanced Chairside Skills	6
DNTA 135	Practical Lab Applications	3
DNTA 148	Advanced Dental Radiography	5
Quarter 4		
DNTA 151	Clinical Experience I	5
DNTA 154	Clinical Experience II	5
DNTA 155	Clinical Seminar	2

Total Credit Hours: 75

Program Learning Outcomes

Apply infection control and safety guidelines in the dental setting.
Model Professional behaviors, ethics and appearances.
Take diagnostic radiographs.
Collect diagnostic treatment data
Perform clinical support treatments
Perform dental laboratory procedures
Provide patient oral health instructions

Dental Lab Technician

CIP Code:

51.0603

Students prepare for employment in dental laboratories, fabricating orthodontic appliances, complete and partial dentures, and gold or porcelain crowns and bridges. The curriculum complies with American Dental Association guidelines and is the only fully accredited ADA dental lab technician program in Washington State. Instructors of this program are Certified Dental Technicians.

- 8 quarter AAS
- Maximum class size: 12
- Student to teacher ratio: 12:1
- Enrollment point: Fall, Spring
- This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Dental Lab Technician AAS (115 Credits)

Plan Code: DLTDTAPT

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
DENLB 101	Introduction to Dental Lab Technology	2
DENLB 102	Dental Anatomy I	3
DENLB 103	Dental Materials I	3
DENLB 104	Denture Processes I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 2		
DENLB 105	Denture Processes II	4
DENLB 106	Dental Anatomy II	2
DENLB 107	Denture Processes III	4
DENLB 108	Denture Processes IV	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
DENLB 110	Introduction to Orthodontics	3
DENLB 111	Ortho Appliances - Fixed	3
DENLB 112	Ortho Appliances - Removable	3
DENLB 120	Removable Partial Dentures I	3

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

DENLB 121	Removable Partial Dentures II	3
DENLB 122	Removable Partial Dentures III	4
DENLB 123	Removable Partial Dentures IV	3
AND	Choose one: DNLB 124 (p. 252), DNLB 125 (p. 252) or DNLB 126 (p. 252)	3

Quarter 5

DENLB 201	Tooth Morphology Practicum	5
DENLB 202	Dental Materials II	2
DENLB 203	Fixed Prosthodontics I	5
DENLB 204	Principles of Occlusion	2

Quarter 6

DENLB 205	Fixed Prosthodontics II	5
DENLB 206	Ceramics I	2
DENLB 207	Understructure Design	5

Quarter 7

DENLB 208	Ethics, Jurisprudence and Laboratory Management	3
DENLB 209	Ceramics II	5
DENLB 211	Ceramics III	4

Quarter 8

DENLB 212	Computer Aided Design/Computer Aided Manufacturing	5

AND Choose:

DENLB 214 (p. 255)	Advanced Crown and Bridge	3
OR		
DENLB 215 (p. 256)	Advanced Dental Ceramics	3

AND Choose:

DENLB 213 (p. 255)	Advanced Technologies	4
OR		
DENLB 296 (p. 256)	Work-Based Learning Seminar	1
DENLB 297 (p. 256)	Work-Based Learning Experience	3

Total Credit Hours: 115

Dental Lab Technician Certificate of Competency (65 Credits)

Plan Code: DLTDTC45

4 quarter Certificate of Competency

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

DENLB 101	Introduction to Dental Lab Technology	2
DENLB 102	Dental Anatomy I	3
DENLB 103	Dental Materials I	3
DENLB 104	Denture Processes I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

DENLB 105	Denture Processes II	4
DENLB 106	Dental Anatomy II	2
DENLB 107	Denture Processes III	4
DENLB 108	Denture Processes IV	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

DENLB 110	Introduction to Orthodontics	3
DENLB 111	Ortho Appliances - Fixed	3
DENLB 112	Ortho Appliances - Removable	3
DENLB 120	Removable Partial Dentures I	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

DENLB 121	Removable Partial Dentures II	3
DENLB 122	Removable Partial Dentures III	4
DENLB 123	Removable Partial Dentures IV	3

AND Choose ONE:

DENLB 124 (p. 252)	Advanced Dentures	3
DENLB 125 (p. 252)	Advanced Orthodontics	3
DENLB 126 (p. 252)	Advanced RPDs	3

Total Credit Hours: 65

Program Learning Outcomes

Demonstrate business practices and procedures appropriate to managing or owning a dental laboratory business
Use work practices and safety protocols that promote a safe and sanitary environment
Apply general laboratory techniques to prepare and evaluate impressions and casts
Fabricate fixed porcelain-to-metal prostheses to advanced competency standards
Fabricate fixed Crown & Bridge prostheses to advanced competency standards
Fabricate partial denture prostheses to advanced competency standards
Practice within the legal and ethical framework of the profession
Fabricate custom impression trays, baseplates and bite rims
Fabricate complete denture prostheses (removable)
Fabricate a variety of orthodontic appliances
Collect diagnostic treatment data

Denturist

Program Description:

Bates Technical College is the only college in Washington State to offer a denturist training program. Denturists are licensed specialists who make, fit, and repair complete and partial dentures, along with other non-orthodontic appliances like nightguards and whitening trays. In order to meet the requirements of the denturist profession, candidates must obtain training at an accredited college to qualify to sit for the Washington, Oregon, Idaho, Montana, Maine, or Arizona denturist's license examination. Instruction includes anatomy, physiology, oral pathology microbiology, ethics, medical emergencies, office management, and clinical/laboratory techniques as they apply to denture practices. Students receive clinical experience in the on-campus denturist clinic which provides services to the public. New students may enter the program at the beginning of fall quarter and in some cases spring quarter. Please inquire to the program advisor or program faculty regarding specific enrollment quarters.

For program costs and fees refer to the catalog TUITION AND FEES PAGE

Denturist Associate of Applied Science (120 Credits)

Plan Code: DSADEAPT

- 6 quarter AAS
- Maximum class size: 16
- Student to teacher ratio: 16:1
- Enrollment point: Fall, Spring (inquire with advisor or program faculty)
- This program is primarily in-person, on-site and hands-on, but includes some online, hybrid, and web-enhanced courses. See course descriptions for more information.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

DNTU 101	Asepsis, Infection, Hazard Control	2
DNTU 102	Biological Concepts	3
DNTU 103	Introduction to Complete Denture Prosthodontics	3
DNTU 104	Baseplates and Occlusions Rims	2
DNTU 105	Tooth Selection and Set I	3
DNTU 106	Dental Materials I	2
DNTU 107	Denture Techniques I	2
DNTU 108	Complete Denture Fabrication I	2
DNTU 109	Dental Office Management I	1
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

DNTU 110	Head Anatomy and Physiology I	2
DNTU 111	Tooth Selection and Set II	1
DNTU 112	Medical Emergencies	3
DNTU 114	Clinical Denture Fabrication II	1
DNTU 115	Partial Dental Casts	2
DNTU 116	Framework Design-RFD	3
DNTU 117	Dental Office Management II	2
DNTU 118	Clinical Denture Procedures I	2
DNTU 119	Dental Impressions Procedures I	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

DNTU 120	Head Anatomy and Physiology II	3
DNTU 121	Tooth Selection and Set III	1
DNTU 123	Complete Denture repair I	2
DNTU 124	RPD Frames Fabrication	2
DNTU 126	Clinical Denture Procedures II	2
DNTU 127	Dental Impressions Procedures	2
DNTU 128	Fabrication Clinical II	1
DNTU 129	Polish Methods -RPD Frames	1
DNTU 139	Dental Office Manager III	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

DNTU 131	Wax Patterns - Partials	4
DNTU 132	Teeth Arrangement -RPD	2
DNTU 135	Introduction to Oral Pathology I	3
DNTU 136	Clinical Denture Procedures III	2
DNTU 138	Fabrication Clinical III	2
DNTU 204	Dental Office Management IV	2
DNTU 210	Geriatric Patient Needs	3

DNTU 233	Finish Methods -RPD	1

Quarter 5

DNTU 125	Oral Pathology	2
DNTU 201	Complete Denture Repair II	2
DNTU 203	RPD Repair Methods	3
DNTU 205	Denture Adjustments	1
DNTU 206	Ethics and Jurisprudence	1
DNTU 207	Malocclusions	2
DNTU 208	Clinical Denture Procedures IV	2
DNTU 211	Fabrication Clinic IV	2
DNTU 220	Dental Office Management V	2

Quarter 6

DNTU 212	Alternative RPD Systems	2
DNTU 213	Implant/Precision Attachment	1
DNTU 214	Advanced Special Services	1
DNTU 215	Advanced Dental Appliances	1
DNTU 222	Fabrication Clinical V	3
DNTU 223	Dental Office Management VI	3
DNTU 229	Clinical Denture Procedures V	4

Elective

Work-Based Learning Elective

DNTU 296	Work-Based Learning	1-13

Total Credit Hours: 120

Program Learning Outcomes

Communicate effectively with patients, their families and associates, members of the dental team and other health professionals involved in patient care, and with the public.
Classify prescription drugs and their contraindications related to the design and fitting of dental prosthetics
Design, fabricate, and insert dentures in the mouths of patients.
Apply principles of anatomy and physiology in the assessment and design of dental prosthetics
Identify dental and oral diseases and disorders
Devise treatment plans specific to individual patient conditions
Perform any adjunctive services such as repair, relines or adjustments of removable dentures
Perform a complete visual/digital oral examination and evaluation of the patient
Apply principles of materials science in the development of dental prosthetics
Supervises auxiliary personnel in the performance of their delegated duties

Diesel and Heavy Equipment Technology

CIP Code:

47.0605

Students entering the Diesel and Heavy Equipment program will be are prepared for employment in the diesel and heavy equipment industry. Emphasis is on theory, application and construction of components such as engines and transmissions. Instruction in other commonly found systems such as electrical, air conditioning, brakes and more is also delivered. Students will learn techniques for diagnosing, repairing, rebuilding, and replacing many of the components of diesel-powered vehicles in our on-campus shop environment. Our programs have working labs similar to those found in industry and offer students the opportunity to learn on equipment that will be found in the industry. The training received in the program educates the student for employment in the varied fields of repair and servicing of over the road trucks, heavy/construction equipment, marine, stationary power generation and agricultural equipment. Upon successful completion of the 6 quarter program, students can earn a Certificate of Competency or an “Associates in Applied Science (AAS) Degree” in Diesel and Heavy Equipment Technology. Certificates of Training are earned upon successful completion of each quarter of training.The program is

articulated with BAS degree program at Montana State University–Northern and Centralia Community College. This program currently receives I-BEST support.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Diesel and Heavy Equipment Technician AAS (103 Credits)

Plan Code: DMTDEAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 9:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program is primarily face-to-face with some online, hybrid, and web-enhanced courses. See course details for more information.
- In this program, students will use various manner of heavy duty truck and equipment including engines, transmissions, hydraulic and electrical components, and other industry associated equipment.
- Students are responsible for purchasing their own standard hand tools commonly found in industry, PPE: eye protection, shoes and clothing appropriate for the environment.

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1, 2, 3, or 4

DIESL 100	Basic Electrical Systems	5
DIESL 112	Electrical Systems Application	4
DIESL 113	Electronic Engine Systems	3
DIESL 114	Mobile Air Conditioning Systems	3
GENED	(p. 53)COLL 101 (p. 242) (1st Quarter) or Other General Education Course	5

Quarter 1, 2, 3, or 4

DIESL 105	Introduction to Diesel Technology	1
DIESL 106	Engine Construction	5
DIESL 107	Engine Systems	1
DIESL 108	Engine Reassembly	4
DIESL 109	Fuel Systems	2
DIESL 110	Introduction to Air Brakes	2
GENED	(p. 53)COLL 101 (p. 242) (1st Quarter) or Other General Education Course	5

Quarter 1, 2, 3, or 4

DIESL 115	Introduction to Power Trains	1
DIESL 117	Automated Manual Transmission Service	2
DIESL 118	Clutch Service	2
DIESL 119	Automatic Transmission Service	2
DIESL 120	Driveline Service	1
DIESL 121	Differentials/Final Drive	2
DIESL 122	Wheel End Service	1
DIESL 123	Service Manual Transmissions	4
GENED	(p. 53)COLL 101 (p. 242) (1st Quarter) or Other General Education Course	5

Quarter 1, 2, 3, or 4

DIESL 130	Basic Hydraulics	5
DIESL 131	Hydraulics II	5
DIESL 132	Steering Systems	3

DIESL 133	Suspension Systems	2

Quarter 5

DIESL 155	Basic Vehicle Services	8
DIESL 206	Advanced Service Applications	7

Quarter 6 - Electives

Choose courses to total a minimum of **13 credits:**

DIESL 208	Advanced Service Techniques	7
DIESL 291	Practical Applications	1-13
DIESL 292	Independent Projects	1-5
DIESL 293	Independent Projects II	1-5
DIESL 296	Work-based Learning Experience	1 to 13
TRUCK 120	Commercial Truck Driving - Class B	8
WBAS 101	Welding Basics	8

Total Credit Hours: 103

Diesel Service Technician Certificate of Competency (90 Credits)

Plan Code: DMTDCC90

4 quarter Certificate of Competency

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1, 2, 3, or 4

DIESL 100	Basic Electrical Systems	5
DIESL 112	Electrical Systems Application	4
DIESL 113	Electronic Engine Systems	3
DIESL 114	Mobile Air Conditioning Systems	3
GENED	(p. 53)COLL 101 (p. 242) (1st Quarter) or Other General Education Course	5

Quarter 1, 2, 3, or 4

DIESL 105	Introduction to Diesel Technology	1
DIESL 106	Engine Construction	5
DIESL 107	Engine Systems	1
DIESL 108	Engine Reassembly	4
DIESL 109	Fuel Systems	2
DIESL 110	Introduction to Air Brakes	2
GENED	(p. 53)COLL 101 (p. 242) (1st Quarter) or Other General Education Course	5

Quarter 1, 2, 3, or 4

DIESL 115	Introduction to Power Trains	1
DIESL 117	Automated Manual Transmission Service	2
DIESL 118	Clutch Service	2
DIESL 119	Automatic Transmission Service	2
DIESL 120	Driveline Service	1
DIESL 121	Differentials/Final Drive	2
DIESL 122	Wheel End Service	1
DIESL 123	Service Manual Transmissions	4
GENED	(p. 53)COLL 101 (p. 242) (1st Quarter) or Other General Education Course	5

Quarter 1, 2, 3, or 4

DIESL 130	Basic Hydraulics	5
DIESL 131	Hydraulics II	5
DIESL 132	Steering Systems	3
DIESL 133	Suspension Systems	2

Quarter 5

DIESL 155	Basic Vehicle Services	8
DIESL 206	Advanced Service Applications	7

Total Credit Hours: 90

Truck and Heavy Duty Equipment Electrical Systems Certificate of Training (15 Credits)

Plan Code: DMTTHC01

1 quarter Certificate of Training

Required Courses

Truck and Heavy Duty Equipment Electrical Systems Certificate of Training (15 Credits)

DIESL 100	Basic Electrical Systems	5
DIESL 112	Electrical Systems Application	4
DIESL 113	Electronic Engine Systems	3
DIESL 114	Mobile Air Conditioning Systems	3

Subtotal: 15

Total Credit Hours: 15

Diesel Engines Certificate of Training (15 Credits)

Plan Code: DMTDGC01

1 quarter Certificate of Training

Required Courses

Diesel Engines Certificate of Training (15 Credits)

DIESL 105	Introduction to Diesel Technology	1
DIESL 106	Engine Construction	5
DIESL 107	Engine Systems	1
DIESL 108	Engine Reassembly	4
DIESL 109	Fuel Systems	2
DIESL 110	Introduction to Air Brakes	2

Subtotal: 15

Total Credit Hours: 15

Heavy Duty Truck Drive Trains Certificate of Training (15 Credits)

Plan Code: DMTHTC01

1 quarter Certificate of Training

Required Courses

Heavy Duty Truck Drive Trains Certificate of Training (15 Credits)

DIESL 115	Introduction to Power Trains	1
DIESL 117	Automated Manual Transmission Service	2
DIESL 118	Clutch Service	2
DIESL 119	Automatic Transmission Service	2
DIESL 120	Driveline Service	1
DIESL 121	Differentials/Final Drive	2
DIESL 122	Wheel End Service	1
DIESL 123	Service Manual Transmissions	4

Subtotal: 15

Total Credit Hours: 15

Hydraulics/Pneumatics Certificate of Training (15 Credits)

Plan Code: DMTHPC01

1 quarter Certificate of Training

Required Courses

Hydraulics/Pneumatics Certificate of Training (15 Credits)

DIESL 130	Basic Hydraulics	5
DIESL 131	Hydraulics II	5
DIESL 132	Steering Systems	3
DIESL 133	Suspension Systems	2

Subtotal: 15

Total Credit Hours: 15

Program Learning Outcomes

In a shop environment, apply a logical inspection, diagnosis, and repair process for truck and heavy equipment repair projects to the standards required of an entry-level technician.
Perform preventive maintenance inspections and services for diesel trucks and heavy equipment using manufacturers' manuals in the performance of assigned work.
Apply theory and principles for proper maintenance, diagnosis, and repair of hydraulic and pneumatic systems and components in trucks and heavy equipment
Comply with personal and environmental safety practices associated with shop environments and activities within the diesel/heavy equipment industry.
Disassemble, assemble and resolve equipment malfunctions of diesel engines and heavy truck drive trains to manufactures standards.
Trouble shoot, resolve equipment malfunctions, and perform routine maintenance on truck and heavy equipment electrical systems.

Digital Media

6 quarter AAS

CIP Code

50.0401

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

Digital media is a key component in film, television, video and website production, and encompasses a variety of projects, from filming and editing to digital animation and computer games. The constant implementation of new technology makes this a fast-moving field, a good fit for the student who seeks a career in a visual medium with leading-edge technology. Instruction includes production and editing software and the opportunity to achieve practical experience working on a variety of studio projects. Employment opportunities for digital media professionals include work as creative services editors, video editors and graphics editors for production studios, film companies, web design companies, advertising and multimedia companies. The program also provides extended learning opportunities for persons previously or currently employed in the industry.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Digital Media AAS (106 Credits)

Plan Code: DVCDMAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 20:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program offers a mix of online, hybrid, web-enhanced, and face-to-face courses. Please see course details for more informat
- Students will be using DSLR cameras, MAC computers, Prosumer cameras, studio lights, audio recording equipment, and Adobe creative cloud software.
- Students will be responsible for purchasing storage media, calculator, and headphones.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

DIGIT 102	Image Editing	5
DIGIT 105	Digital Imaging	5
DIGIT 145	Digital Media - Audio	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

DIGIT 121	Production Process I	5
DIGIT 126	Production Process II	5
DIGIT 127	Production Process III	5

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

DIGIT 103	Graphic Generation	5
DIGIT 130	Production Editing I	3
DIGIT 131	Production Editing II	3
DIGIT 132	Digital Media - Video	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

DIGIT 141	Compositing I	5
DIGIT 142	Compositing II	5
DIGIT 143	Digital Media - Animation	5

Quarter 5

DIGIT 210	Pre-Production Project I	5
DIGIT 211	Production Process Project I	5
DIGIT 212	Post-Production Project I	5

Quarter 6

DIGIT 220	Pre-Production Project II	5
DIGIT 221	Production Process Project II	5
DIGIT 222	Post-Production Project II	5

Total Credit Hours: 106

Digital Media AAS-T (111 Credits)

Plan Code: DVCDMAAS

- 6 quarter AAS-T
- Maximum class size: 20
- Student to teacher ratio: 20:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program offers a mix of online, hybrid, web-enhanced, and face-to-face courses. Please see course details for more informat
- Students will be using DSLR cameras, MAC computers, Prosumer cameras, studio lights, audio recording equipment, and Adobe creative cloud software.
- Students will be responsible for purchasing storage media, calculator, and headphones.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

DIGIT 102	Image Editing	5
DIGIT 105	Digital Imaging	5
DIGIT 145	Digital Media - Audio	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 2

DIGIT 121	Production Process I	5
DIGIT 126	Production Process II	5
DIGIT 127	Production Process III	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 3

DIGIT 103	Graphic Generation	5
DIGIT 130	Production Editing I	3
DIGIT 131	Production Editing II	3
DIGIT 132	Digital Media - Video	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 4		
DIGIT 141	Compositing I	5
DIGIT 142	Compositing II	5
DIGIT 143	Digital Media - Animation	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5
Quarter 5		
DIGIT 210	Pre-Production Project I	5
DIGIT 211	Production Process Project I	5
DIGIT 212	Post-Production Project I	5
Quarter 6		
DIGIT 220	Pre-Production Project II	5
DIGIT 221	Production Process Project II	5
DIGIT 222	Post-Production Project II	5

Total Credit Hours: 111

Digital Media Certificate of Competency (76 Credits)

Plan Code: DVCDMC45

4 quarter Certificate of Competency

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
DIGIT 102	Image Editing	5
DIGIT 105	Digital Imaging	5
DIGIT 145	Digital Media - Audio	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 2		
DIGIT 121	Production Process I	5
DIGIT 126	Production Process II	5
DIGIT 127	Production Process III	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
DIGIT 103	Graphic Generation	5
DIGIT 130	Production Editing I	3
DIGIT 131	Production Editing II	3
DIGIT 132	Digital Media - Video	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
DIGIT 141	Compositing I	5
DIGIT 142	Compositing II	5
DIGIT 143	Digital Media - Animation	5

Total Credit Hours: 76

Video Production Certificate of Training (15 Credits)

Plan Code: DVCVPC01

1 quarter Certificate of Training

Required Courses

Video Production Certificate of Training (15 Credits)		
DIGIT 121	Production Process I	5
DIGIT 126	Production Process II	5
DIGIT 127	Production Process III	5

Subtotal: 15

Total Credit Hours: 15

Editing Certificate of Training (16 Credits)

Plan Code: DVCEDC01

1 quarter Certificate of Training

Required Courses

Editing Certificate of Training (16 Credits)		
DIGIT 130	Production Editing I	3
DIGIT 131	Production Editing II	3
DIGIT 132	Digital Media - Video	5
DIGIT 145	Digital Media - Audio	5

Total Credit Hours: 16

Digital Media -Imaging (15 Credits)

Plan Code: DVCIMC01

1 quarter Certificate of Training

Required Courses

Digital Media -Imaging (15 Credits)		
DIGIT 102	Image Editing	5
DIGIT 103	Graphic Generation	5
DIGIT 105	Digital Imaging	5

Total Credit Hours: 15

Digital Media -Motion Graphics (15 Credits)

Plan Code: DVCMGC01

1 quarter Certificate of Training

Required Courses

Digital Media -Motion Graphic (15 Credits)		
DIGIT 141	Compositing I	5
DIGIT 142	Compositing II	5
DIGIT 143	Digital Media - Animation	5

Total Credit Hours: 15

Program Learning Outcomes

1. Use industry standard digital media/multimedia hardware and software
2. Create projects and presentations utilizing a variety of digital media/multimedia technologies
3. Design and generate still imagery/graphics
4. Design and generate video and/or animations in a multimedia project
5. Solve industry-related problems
6. Design and execute audio technology for a digital media/multimedia projects
7. Use computer applications for digital media/multimedia projects
8. Produce digital media/multimedia projects
9. Demonstrate appropriate communication skills

Early Childhood Education

CIP Code: 13.1210

- Maximum class size: 20
- Student to teacher ratio: 20:1
- Enrollment points: Fall, Winter, Spring, Summer
- Entire program is available fully online, but students may take first year courses face-to-face
- AAS and AAST degree seeking students are encouraged to complete State ECE CoC before taking second-year courses
- This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.
- Negative Mantoux TB test in the 12 months prior to 1st day of class
- ECE students must be able to pass a background check, fingerprints, First Aid/CPR course, get TB, measles and COVID vaccinations.

Program Description:

Students prepare for careers in Early Childhood Education (ECE) for such positions as Early Learning Program teacher, assistant teacher, program supervisor, and/or center director. The ECE curriculum prepares students to work with children birth to 8 years of age in diverse early childhood environments. The curriculum is based on the national standards outlined by the National Association for the Education of Young Children (NAEYC) and the national accreditation standards. Early Childhood students will combine learned theories and practical laboratory experiences with young children in early childhood education programs under supervision with qualified

educators.

For program costs and fees refer to the catalog TUITION AND FEES PAGE

AAS Specializations

EARLY CHILDHOOD EDUCATION-AL AAS (90)	Administration Early Learning
EARLY CHILDHOOD EDUCATION-AL AAS-T (90)	Administration Early Learning
EARLY CHILDHOOD EDUCATION-FCC AAS (90)	Family Child Care
EARLY CHILDHOOD EDUCATION-FCC AAS-T (90)	Family Child Care
EARLY CHILDHOOD EDUCATION-I/TC AAS (90)	Infant/Toddler Care
EARLY CHILDHOOD EDUCATION-I/TC AAS-T (90)	Infant/Toddler Care
EARLY CHILDHOOD EDUCATION-SAC AAS (90)	School Age Care
EARLY CHILDHOOD EDUCATION-SAC AAS-T (90)	School Age Care

Early Childhood Education-AAS (90 Credits)

Plan Code: ECEECAPT

5 quarter AAS

General Education Requirements

5 credits from ENGL& 101

5 credits from MATH 173

10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 170	Environments for Young Children	3
GENED	ENGL& 101 (p. 304) or MATH 173 (p. 346) or Sciences-Humanities (p. 53)	5

Quarter 2 or 3

ECED& 120	Practicum - Nurturing Relationships	2
EDUC& 115	Child Development	5
EDUC& 130	Guiding Behavior	3
EDUC& 150	Child, Family and Community	3
GENED	ENGL& 101 (p. 304) or MATH 173 (p. 346) or Sciences-Humanities (p. 53)	5

Quarter 2 or 3

ECED& 160	Curriculum Development	5
ECED& 180	Language & Literacy Development	3
ECED& 190	Observation and Assessment	3
CHOICE	Choose Specialization Option Below	3
GENED	ENGL& 101 (p. 304) or MATH 173 (p. 346) or Sciences-Humanities (p. 53)	5

Specialization Options

Choose ONE 3-Credit Course for an AAS Specialization

AAS Specializations (p. 115)

ECED& 132	Infant and Toddler Care	3
ECED& 134	Family Child Care	3
ECED& 139	Admin of Early Learning	3
EDUC& 136	School Age Care	3

Subtotal: 3

Quarter 4 or 6

ECE 210	Early Childhood Practicum III	2
ECE 211	Emotional and Social Development	3
ECE 215	STEM for Young Children	3
EDUC& 204	Exceptional Child	5

GENED	Sciences-Humanities (p. 53)	5

Quarter 5 or 7

ECE 204	Early Childhood Practicum II	2
ECE 207	Professionalism	5
ECE 212	Cognitive Development	5
ECE 213	Creative Experience - Art & Movement	5

Subtotal: 90

Elective

With instructor permission only

ECE 296	Work-Based Learning Experience	1 to 13

Early Childhood Education-AAS-T (90 Credits)

Plan Code: ECEECAAS

5 quarter AAS-T

General Education Requirements

5 credits from the (p. 54) (p. 304) (p. 54)ENGL& 101

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 170	Environments for Young Children	3
GENED	(p. 54)ENGL& 101 (p. 304) or Quantitative (p. 54) (p. 54)	5

Quarter 2 or 3

ECED& 120	Practicum - Nurturing Relationships	2
EDUC& 115	Child Development	5
EDUC& 130	Guiding Behavior	3
EDUC& 150	Child, Family and Community	3
GENED	ENGL& 101 (p. 304) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 2 or 3

ECED& 160	Curriculum Development	5
ECED& 180	Language & Literacy Development	3
ECED& 190	Observation and Assessment	3
CHOICE	Choose Specialization Option Below	3
GENED	ENGL& 101 (p. 304) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Specialization Options

Choose ONE 3-Credit Course for an AAS Specialization

AAS Specializations (p. 115)

ECED& 132	Infant and Toddler Care	3
ECED& 134	Family Child Care	3
ECED& 139	Admin of Early Learning	3
EDUC& 136	School Age Care	3

Subtotal: 3

Quarter 4 or 6

ECE 210	Early Childhood Practicum III	2
ECE 211	Emotional and Social Development	3
ECE 215	STEM for Young Children	3
EDUC& 204	Exceptional Child	5

GENED	Sciences-Humanities (p. 54) (p. 54)	5

Quarter 5 or 7

ECE 204	Early Childhood Practicum II	2
ECE 207	Professionalism	5
ECE 212	Cognitive Development	5
ECE 213	Creative Experience - Art & Movement	5

Subtotal: 90

Elective

With instructor permission only

ECE 296	Work-Based Learning Experience	1 to 13

Early Childhood Education-CoC (47 Credits)

Plan Code: ECEECC45

3 quarter Certificate of Competency

General Education Requirements

5 credits from ENGL& 101

5 credits from MATH 173

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 170	Environments for Young Children	3
GENED	ENGL& 101 (p. 304) or MATH 173 (p. 346)	5

Quarter 2 or 3

ECED& 120	Practicum - Nurturing Relationships	2
EDUC& 115	Child Development	5
EDUC& 130	Guiding Behavior	3
EDUC& 150	Child, Family and Community	3

Quarter 2 or 3

ECED& 160	Curriculum Development	5
ECED& 180	Language & Literacy Development	3
ECED& 190	Observation and Assessment	3
GENED	ENGL& 101 (p. 304) or MATH 173 (p. 346)	5

Total Credit Hours: 47

State Initial Early Childhood Education Certificate –Certificate of Training (12 Credits)

1 quarter Certificate of Training

Plan Code: ECEECC01

Required Courses

State Initial Early Childhood Education Certificate – Certificate of Training (12 Credits)

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 120	Practicum - Nurturing Relationships	2

Total Credit Hours: 12

State Short ECE Certificate of Specialization - General Certificate of Training (20 Credits)

1 quarter Certificate of Training

Plan Code: ECESHC20

Required Courses

State Short ECE Certificate of Specialization - General Certificate of Training (20 Credits)

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 120	Practicum - Nurturing Relationships	2
EDUC& 115	Child Development	5
EDUC& 130	Guiding Behavior	3

Total Credit Hours: 20

State Short ECE Certificate of Administration Early Learning Certificate of Training (20 Credits)

1 quarter Certificate of Training

Plan Code: ECEADC20

Required Courses

State Short ECE Certificate of Specialization - Administration Early Learning Certificate of Training (20 Credits)

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 120	Practicum - Nurturing Relationships	2
ECED& 139	Admin of Early Learning	3
EDUC& 115	Child Development	5

Total Credit Hours: 20

State Short ECE Certificate of Specialization - School Age Care Certificate of Training (20 Credits)

1 quarter Certificate of Training

Plan Code: ECESAC20

Required Courses

State Short ECE Certificate of Specialization - School Age Care Certificate of Training (20 Credits)

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 120	Practicum - Nurturing Relationships	2
EDUC& 115	Child Development	5
EDUC& 136	School Age Care	3

Total Credit Hours: 20

State Short ECE Certificate of Specialization -Family Child Care Certificate of Training (20 Credits)

1 quarter Certificate of Training

Plan Code: ECEFCC20

Required Courses

State Short ECE Certificate of Specialization -Family Child Care Certificate of Training (20 Credits)

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 120	Practicum - Nurturing Relationships	2
ECED& 134	Family Child Care	3
EDUC& 115	Child Development	5

Total Credit Hours: 20

State Short ECE Certificate of Specialization- Infant Toddler Care Certificate of Training (20 Credits)

1 quarter Certificate of Training

Plan Code: ECEITC20

Required Courses

State Short ECE Certificate of Specialization- Infant Toddler Certificate of Training (20 Credits)

ECED& 105	Intro to Early Childhood Education	5
ECED& 107	Health, Nutrition and Safety	5
ECED& 120	Practicum - Nurturing Relationships	2
ECED& 132	Infant and Toddler Care	3
EDUC& 115	Child Development	5

Total Credit Hours: 20

Program Learning Outcomes

1. Create/design, implement and assess meaningful,

culturally linguistic and ability diverse learning experiences

2. Use specialized knowledge of child development and of individual children to create developmentally appropriate intentional and challenging learning environments
3. Skillfully observe, document and assess all children's development and learning in collaboration with families
4. Build positive relationships and guide all children with reflective, thoughtful interactions
5. Build culturally inclusive and respectful partnerships with children's families and their communities
6. Engage in professional behavior, following the NAEYC Code of Ethics and utilize community resources
7. Recognize the obligation to lifelong learning and continued professional development

Electrical Construction

9 quarter AAS

CIP Code

46.0302

This program offers hands-on and web-enhanced courses. See course descriptions for more information.

Program Description:

Full-time day and swing shift programs are available for students seeking to earn a degree or certificate in electrical construction for jobs in commercial and residential construction, public utility agencies, and industrial construction and maintenance. The program also provides extended learning opportunities for persons previously or currently employed in these and related occupations. Students interested in earning hours from the Department of Labor & Industries towards their EL01 license should consult with an instructor..

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Electrical Construction AAS (144 Credits)

Plan Code: ELEECAPT

The Electrical Construction AAS Degree Program provides students with a robust foundation in electrical theory, safety, and practical skills necessary for careers in the electrical industry. The Electrical Construction programs emphasize the importance of safety, adherence to industry standards, and hands-on experience with electrical installations and maintenance. Through nine-quarters of learning, the program covers a broad spectrum of subjects including residential, commercial, and industrial wiring, advanced motor controls, blueprint reading, and new electrical technologies such as photovoltaic designs, energy management systems, green wiring practices, as well as solar, wind, and low voltage electrical systems. Graduates of the Electrical Construction program are eligible to earn up to 4000 hours from the Department of Labor & Industries towards their EL01 electrical license.

- AAS in 9 quarters
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Spring
- This is primarily a face-to-face program with web-enhanced activities
- Students will use hand and power tools, transportation vehicles, ladders, and general construction equipment
- This is a nine-quarter program where students choose either day (7AM – 2PM) or swing (12PM – 7PM) shift course offerings
-

A list of required tools and personal protective equipment(PPE) is given to students upon acceptance in the program; students are responsible for the purchase of these items prior to the start of ELCON classes

-

Upon successful completion of the nine-quarter program of study, students may be awarded up to 4000 hours with the Department of Labor & Industries

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

ELCON 101	Introduction to Electrical Construction	3
ELCON 102	Applied Physical Science	5
ELCON 103	Hand and PowerTools	4
ELCON 104	Electrical Service Installation	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

ELCON 105	Electrical Components	4
ELCON 106	Introduction to Residential Wiring	3
ELCON 107	National Electric Code	4
ELCON 108	NFPA 70E Standards	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

ELCON 109	Residential Design	3
ELCON 110	Residential Wiring Techniques	3
ELCON 111	Systems Troubleshooting	3
ELCON 112	Introduction to Blueprint Reading	3
ELCON 113	Blueprint Reading	5
	Applications	
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

ELCON 114	New Residential Technologies	4
ELCON 201	Specialty Tools	4
ELCON 202	Commercial Wiring	3
ELCON 203	Commercial Codes and Regulations	3
GENED	If not already taken	

Quarter 5

ELCON 204	Commercial Material Identification	3
ELCON 205	Commercial Installation	3
ELCON 206	Industrial Wiring	3
ELCON 207	Industrial Material Identification	3
ELCON 208	Industrial Installation	3

Quarter 6

ELCON 209	Industrial Hazards	3
ELCON 210	Motors and Controllers	4
ELCON 211	Project Estimation	5
ELCON 212	Control Circuits	3

Quarter 7

ELCON 213	Motors and Controllers Applications	3
ELCON 214	Transformers	3
ELCON 215	Advanced Motor Controls	3
ELCON 216	New Technology Commercial	4

Quarter 8

ELCON 224	Advanced Projects I	6
ELCON 225	Advanced Projects II	6

Quarter 9

ELCON 226	Advanced Projects III	6
ELCON 227	Advanced Projects IV	6

Total Credit Hours: 144

Electrical Construction Certificate of Competency (67 Credits)

Plan Code: ELEREC45

3-4 quarter Certificate of Training

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

ELCON 101	Introduction to Electrical Construction	3
ELCON 102	Applied Physical Science	5
ELCON 103	Hand and PowerTools	4
ELCON 104	Electrical Service Installation	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

ELCON 105	Electrical Components	4
ELCON 106	Introduction to Residential Wiring	3
ELCON 107	National Electric Code	4
ELCON 108	NFPA 70E Standards	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

ELCON 109	Residential Design	3
ELCON 110	Residential Wiring Techniques	3
ELCON 111	Systems Troubleshooting	3
ELCON 112	Introduction to Blueprint Reading	3
ELCON 113	Blueprint Reading Applications	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

ELCON 201	Specialty Tools	4
GENED	If not already taken	

Total Credit Hours: 67

Program Learning Outcomes

Outcomes

Work safely according to OSHA and NFPA Standards as well as contractor and customer safety protocols and policies
Integrate carpentry, masonry, plumbing and HVACR systems with electrical installation and maintenance
Interpret and comply with the National Electric Code NFPA 70 book and local codes
Install, test, and repair wiring systems in residential, commercial, and industrial settings
Interpret all sections of blueprints and draft electrical circuits
Install new materials for existing and new projects
Recognize potential hazards
Produce take-off lists

Electrical Engineering Technology

6 quarter AAS

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

Engineering Technology professionals apply mathematical and science principles to develop solutions concerning residential, commercial, and industrial constructions according to the requirements of the National Electrical Code (NEC). The program covers wiring methods, wiring materials, conductors, overcurrent protection devices, branch circuits, feeders, transformers, electrical services, special location installations, grounding, and renewable energy. Students prepare for careers in electrical code applications, code calculations, and interior/exterior designs. Instruction covers most phases of electrical engineering including Autodesk software designs using Building Information Model (BIM) and parametric engineering models of mechanical, engineering, and plumbing (MEP) employed in modern building construction.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Electrical Engineering Technology AAS (90 Credits)

Plan Code: ECTEEAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 20:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program is primarily offered online, Hybrid, and web-enhanced with some face-to-face contact in all the courses. Please see course details for more information.
- Students will use DMM/Oscilloscopes and other measuring devices
- At the completion of degree, students will have earned Engineering Technology Certificate for the first-quarter courses
- Students are responsible for purchasing a Digital Multimeter (DMM).

General Education Requirements

5 credits from the Communications Distribution

5 credits Quantitative is met by MATH& 141

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

AMATH 170	Engineering Foundational Mathematics	5
ENGR& 111	Engineering Graphics I	5
ENGR& 112	Engineering Graphics II	5

Quarter 2

ETRIC 120	CAD Design Applications	5
ETRIC 121	Technical Communications with Lab	5
MATH& 141	Precalculus I	5

Quarter 3

ETRIC 128	Electrical Math	5
ETRIC 260	Advanced CAD Operations	5
GENED	Communications (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

ETRIC 147	Code Applications	5
ETRIC 148	Electrical Systems with Simulation	5
GENED	Communications (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 5

ETRIC 249	Project Management	5
ETRIC 250	Senior Project	5
PHYS& 114	Introductory Physics I (Algebra based Physics)	5

Quarter 6

ETRIC 297	Work-Based Learning Seminar	2

Choose **ONE** of these courses for 13 credits:

ETRIC 291	Practical Applications	13
ETRIC 296	Work-Based Learning	13

Total Credit Hours: 90

Engineering Technology Certificate of Training (15 Credits)

Plan Code: ETGETC01

1 quarter Certificate of Training

Required Courses

Engineering Technology Certificate of Training (15 Credits)

ENGR& 111	Engineering Graphics I	5
ENGR& 112	Engineering Graphics II	5
AMATH 170	Engineering Foundational Mathematics	5

Total Credit Hours: 15

Program Educational Objectives

1. Demonstrate an ability to function on multi-

disciplinary teams in an engineering-focused environment.

2. Demonstrate an ability to communicate clearly and effectively in a diverse and technical environment.

3. Demonstrate an ability to manage time effectively working on engineering projects.

4. Demonstrate an ability to systematically make decisions as a member of an engineering team.

Program Learning Outcomes

1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.

2. An ability to design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.

3. An ability to apply written, oral and graphical communication in well-defined technical and non-technical environments; and an ability to identify and use appropriate literature.

4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results.

5. An ability to function effectively as a member of a technical team.

Electronic Equipment Service Technician

6 quarter AAS

CIP Code:

47.0101

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

Students prepare for careers in the electronic equipment service profession as technicians in a wide range of high tech industries, including broadcast audio, broadcast video, car audio, electronic service, medical equipment repair, office automation and video tape. Employment opportunities may also include mobile electronics installer and electronic assembler. Students acquire and hone service technician skills through extensive practice with live equipment, and prepare for industry certification as Certified Electronics Technicians, Mobile Electronics Certified Professionals, and Certified Broadcast Technologists. This program also provides extended learning opportunities for persons previously or currently employed in these and related occupations.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Electronic Equipment Service Technician AAS (114-115 Credits)

Plan Code: EEIEEAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 11:1
- Enrollment point: Fall, Winter, Spring, Summer
- This degree offers online, hybrid, web-enhanced, and face-to-face courses. See course descriptions for further information.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

BMST 105	Testing Equipment	5
BMST 106	Soldering	2
EEST 111	Electronics Theory I	4
EEST 112	Electronics Laboratory I	5
EEST 113	Electronics Applied Math I	2

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

BMST 109	Applied Service I	3
EEST 114	Electronics Theory II	4
EEST 115	Electronics Laboratory II	5
EEST 116	Electronics Applied Math II	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

BMST 107	Schematics	3
EEST 108	Electronic Devices I	4
EEST 223	Introduction to Digital Systems	5
EEST 225	Introduction to Microprocessors	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

EEST 109	Electronic Devices II	4
EEST 207	Introduction to Networking	5
EEST 224	Introduction to Wireless Communications	4
Elective	(p. 53) See Below	4 or 5

Quarter 5

BMST 110	Applied Service II	2
EEST 110	Introduction to Programmable Logic Controllers	5
EEST 208	Introduction to Embedded Controllers	5
EEST 221	Electronic Principles -RFID	4
Elective	(p. 53) See Below	4 or 5

Quarter 6

EEST 206	Emerging Technologies	3
EEST 210	Capstone Project	5
EEST 222	Introduction to Fiber Optic Communications	5
Elective	(p. 53) If not already taken - See Below	

Required Electives

9 or 10 Credits Required

TRON 124	Pneumatics and Hydraulics	4
TRON 137	Mechanical Systems	5
TRON 211	Industrial Robotics I	5
TRON 214	Motors & Control Systems	5

Total Credit Hours: 114-115

Program Learning Outcomes

Outcomes

Function as a member of a team to complete a task in a timely and efficient manner; delegating, organizing and documenting tasks and results.

Apply skills for life-long learning by locating, evaluating, and applying relevant information using external and internal resources.

Establish professional oral and written business communication skills appropriate in a clinical environment.

Apply professional oral and written communication skills appropriate in an industry environment.

Safely perform maintenance and troubleshooting operations to the component and/or board level

Demonstrate effective working relationships with people who are similar to or different.

Identify, analyze, and maintain technical equipment per customer requirements.

Observe professional standards as required by industry

Emergency Medical Technician

Program Description:

This course prepares students to meet the requirements for employment as an EMT. It adheres to the National EMS Scope of Practice Model, The National EMS Educational Standards, the Instructor Guidelines Published in January 2009, and the Washington State Amended EMS Educational Standards. The EMT Class is a stressful, fast-paced course that requires both cognitive and psychomotor skills working together. Our process prepares you to achieve the best outcome for the citizen that activates the Emergency Medical System (EMS), thus requesting the services provided by EMT’s, Paramedics, and Hospital staff. We train each EMT to be competent enough to not only meet the minimum skills and knowledge required to pass the course and certification exams, but also instill

competence and confidence to treat their own families, friends, and community when needed. We will help you develop critical thinking skills needed for this environment.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Program Learning Outcomes:

Successful completion of this course earns students the opportunity to take the National Registry EMT Certification Exam Demonstrate ethical behaviors, such as confidentiality, empathy and understanding in the workplace.

Emergency Medical Technician (COT)

Plan Code: EMAETC01

1 quarter Certificate of Training

Required Course

Emergency Medical Technician (COT)		
FIRES 225	Emergency Medical Technician (EMT)	14

Facilities Maintenance Engineer

Program Description:

Students prepare for careers in the building care and maintenance industry, including boiler operator, Maintenance Technician, Apartment Maintenance Technician, Facilities Maintenance Technician, Facilities Maintenance Engineer, and Building Engineer. Instruction includes electricity, welding, blueprint reading, machine maintenance, grounds keeping, boiler repair and operation, HVAC/R and advanced industry applications. Major elements of the program prepare students for Class V and Class IV boiler operator/fireman certification. The program also provides extended learning opportunities for persons previously or currently employed in these or other related professions.

CIP Code:

46.0401

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Facilities Maintenance Engineer AAS (120-124 Credits)

Plan Code: BCMFMAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program is primarily face-to-face with some hybrid, and web-enhanced courses. Please see course details for more information.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
FACM 101	Safety Principles	2
FACM 102	Fundamentals of Electricity	3
FACM 103	Electrical Service	4
FACM 104	Introduction to Blueprint Reading	5
FACM 105	Engineering Drawings	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 2		
FACM 106	Introduction to Hydraulics/Pneumatics	5
FACM 107	Machine Components	5
FACM 108	Mechanical and Machine Maintenance	5
FACM 109	Tools and Equipment	3

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

FACM 111	Building Maintenance and Repair Methods	5
FACM 113	Introduction to Building Maintenance	3
FACM 121	Grounds Keeping	5
FACM 222	Introduction to Remodeling	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

FACM 122	HVAC Systems	4
FACM 221	Small Business Planning	3
FACM 230	Computers in Industry	2
FACM 231	Computer Applications	4

And choose ***ONE*** of these courses:

FACM 112 (p. 312)	Basic Refrigeration	4
FACM 292 (p. 315)	Independent Project I	5
FACM 293 (p. 316)	Independent Project II	5

Quarter 5

FACM 140	Boiler Operations and Certifications	12
FACM 144	Advanced Boiler Operations	5

Quarter 6

WBAS 101	Welding Basics	8

And choose ***ONE*** of these courses:

FACM 143	Advanced Projects	10
FACM 296	Work-Based Learning Experience I	1-13
FACM 297	Work-Based Learning Experience II	1-13

Total Credit Hours: 120-124

Building Care and Maintenance Certificate of Competency (68 Credits)

Plan Code: BCMBMC45

3-4 quarter Certificate of Completion

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

FACM 101	Safety Principles	2
FACM 102	Fundamentals of Electricity	3
FACM 103	Electrical Service	4
FACM 104	Introduction to Blueprint Reading	5
FACM 105	Engineering Drawings	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

FACM 106	Introduction to Hydraulics/Pneumatics	5
FACM 107	Machine Components	5
FACM 108	Mechanical and Machine Maintenance	5
FACM 109	Tools and Equipment	3

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

FACM 111	Building Maintenance and Repair Methods	5
FACM 113	Introduction to Building Maintenance	3
FACM 121	Grounds Keeping	5
FACM 222	Introduction to Remodeling	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Total Credit Hours: 68

Apartment Maintenance Technician I (19 Credits)

This certificate will provide students with the skills necessary for entry level employment as an apartment maintenance technician. Students will learn about the basic construction and composition of buildings, how to read prints and plans, and how to carry out basic building interior and exterior repairs with an emphasis on residential and multi-family homes. Basic tool safety, construction safety, and plumbing system installation and repair are also covered.

Apartment Maintenance Technician I (19 Credits)

Required Courses

FACM 101	Safety Principles	2
FACM 104	Introduction to Blueprint Reading	5
FACM 111	Building Maintenance and Repair Methods	5
FACM 113	Introduction to Building Maintenance	3
FACM 222	Introduction to Remodeling	4

Subtotal: 19

Outcomes

Maintain, diagnose and repair conventional building technologies and systems: wiring, heating, cooling, plumbing and ventilation systems.
Operate common hand tools, electrical test equipment and power tools used in the maintenance trade in a safe and efficient manner.
Measure, calculate and estimate needed supplies and costs.
Read and interpret basic blueprints, shop drawings and electrical schematics.
Apply safety procedures when using maintenance tools.

Apartment Maintenance Technician II (18 Credits)

This certificate will provide students with a 2nd tier level of skills for apartment maintenance technicians. It requires some previous education or experience in the field, and builds off the Apartment Maintenance Technician I certificate, but can be taken without first taking level 1 based on industry experience. It is meant as professional development and additional training for maintenance staff already working in the field or who have past experience and want to up-skill.

Students will learn about the maintenance and upkeep of residential buildings, as well as wiring and electrical fixtures of residential and multi-family homes. Basic tool safety, electrical safety, irrigation system, grounds keeping, and low voltage electrical system installation and repair are also covered. Students will learn basic computer skills and familiarize themselves with the Microsoft Office Suite for use in the maintenance industry, as well as an introduction to computerized maintenance management and ticketing systems.

Apartment Maintenance Technician II

Required Courses

FACM 102	Fundamentals of Electricity	3
FACM 103	Electrical Service	4
FACM 121	Grounds Keeping	5
FACM 230	Computers in Industry	2
FACM 231	Computer Applications	4

Outcomes

Repair and maintain basic electrical fixtures.
Maintain, diagnose and repair conventional building technologies and systems: wiring, heating, cooling, plumbing and ventilation systems.
Operate common hand tools, electrical test equipment and power tools used in the maintenance trade in a safe and efficient manner.
Identify National Electric Code standards, recommended practices and guides for commercial and industrial building electrical distribution.
Measure, calculate and estimate needed supplies and costs.
Read and interpret basic blueprints, shop drawings and electrical schematics.
Apply safety procedures when using maintenance tools.

Total Credit Hours: 18

Building Care and Maintenance I Certificate of Training (18 Credits)

Plan Code: BCMU1C01

1 quarter Certificate of Training

Required Courses

Building/Care Maintenance I Certificate of Training (18 Credits)

FACM 101	Safety Principles	2
FACM 102	Fundamentals of Electricity	3
FACM 103	Electrical Service	4
FACM 104	Introduction to Blueprint Reading	5
FACM 105	Engineering Drawings	4

Total Credit Hours: 18

Building Care and Maintenance II Certificate of Training (17 Credits)

Plan Code: BCMU2C01

1 quarter Certificate of Training

Required Courses

Building/Care Maintenance II Certificate of Training (17 Credits)

FACM 111	Building Maintenance and Repair Methods	5
FACM 113	Introduction to Building Maintenance	3
FACM 121	Grounds Keeping	5
FACM 222	Introduction to Remodeling	4

Total Credit Hours: 17

Maintenance Technician I Certificate of Training (18 Credits)

Plan Code: BCMM1C01

1 quarter Certificate of Training

Required Courses

Maintenance Technician I Certificate of Training (18 Credits)

FACM 106	Introduction to Hydraulics/Pneumatics	5
FACM 107	Machine Components	5
FACM 108	Mechanical and Machine Maintenance	5
FACM 109	Tools and Equipment	3

Total Credit Hours: 18

Maintenance Technician II Certificate of Training (17 Credits)

Plan Code: BCMM2C01

1 quarter Certificate of Training

Required Courses

Maintenance Technician II Certificate of Training (17 Credits)

FACM 112	Basic Refrigeration	4
FACM 122	HVAC Systems	4
FACM 221	Small Business Planning	3
FACM 230	Computers in Industry	2
FACM 231	Computer Applications	4

Total Credit Hours: 17

Boiler Operations Certificate of Training (17 Credits)

Plan Code: ESI12C01

1 quarter Certificate of Training

Required Courses

Boiler Operations Certificate of Training (17 Credits)

FACM 140	Boiler Operations and Certifications	12
FACM 144	Advanced Boiler Operations	5

Total Credit Hours: 17

Program Learning Outcomes

Outcomes

Identify National Electrical Code standards, recommended practices and guides for commercial and industrial building electrical distribution
Maintain, diagnose and repair conventional building technologies and systems: wiring, heating, cooling, plumbing and ventilation systems
Operate common hand tools, electrical test equipment and power tools used in the maintenance trade in a safe and efficient manner
Read and interpret basic blueprints, shop drawings and electrical schematics
Measure, calculate and estimate needed supplies and costs
Apply safety procedures when using maintenance tools
Repair and maintain basic electrical fixtures
Follow fire prevention practices
Perform basic welding repairs

Fire Service

Program Description:

Students prepare for careers as fire fighters and closely related occupations in this program certified by the International Fire Service Accreditation Congress. Training incorporates all entry-level requirements according to nationally recognized standards. Students who choose the management option are prepared for leadership in the fire service with emphasis on the administration and management of fire service organizations. The program is intended to develop skills in critical and analytical reasoning as they apply to fire services.

CIP Code:

43.0203

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Fire Service AAS (100 Credits) - Day Program

- 6 quarter AAS
- Maximum class size: 40
- Student to Teacher ratio: 20:1
- Enrollment Point: Fall or Spring quarters
- Both a day program and night program are offered regularly.
- This program offers a combinations of hands-on, and web-enhanced courses. See course descriptions for more information.
- Student are responsible for purchasing fire fighting boots, helmets, gloves, and uniforms.
- Industry required certification exams (FFI, HazMat, and EMT) are made available to students.
- Students use industry specific equipment in the program such as; ladders, fire engines, breathing apparatus and equipment needed for structural fires.
- Bates Partners with multiple Fire Departments across the region in order to place our students in jobs and/or apprenticeships. Likewise, Bates is recognized by area agencies as a great training opportunity for their currently employed fire fighters.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

FIRES 101	Orientation to Fire Service	2
FIRES 102	Firefighter Safety	4
FIRES 103	Fire Service Applications I	5
FIRES 104	Physical Fitness I	1
FIRES 106	Fire Hose and Appliances	3

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

FIRES 105	Introduction to Fire Science	3
FIRES 107	Fire Service Applications II	5
FIRES 108	Physical Fitness II	1
FIRES 109	Ladders	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

FIRES 110	Intermediate Fire Service	2
FIRES 111	Fires Service Applications III	4
FIRES 112	Physical Fitness III	1
FIRES 121	Wildland Firefighter	2
FIRES 125	Fire Vehicle Operations	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

FIRES 123	Fire Service Applications IV	5
FIRES 124	Physical Fitness IV	1
FIRES 201	Rescuer Procedures	3
FIRES 202	Advanced Fire Service	3
FIRES 215	Hazardous Materials I	1

Quarter 5

FIRES 203	Fire Service Applications V	5
FIRES 204	Physical Fitness V	1
FIRES 206	Employment Preparation	2
FIRES 207	Strategy, Tactics, and Incident Management	2
FIRES 208	Fires Service Applications VI	4
FIRES 216	Hazardous Materials II	2

Quarter 6

FIRES 209	Basic Life Support	1
FIRES 225	Emergency Medical Technician (EMT)	14

Electives

Electives

FIRES 212	Advanced Firefighter	4
FIRES 213	Physical Fitness VI	1
FIRES 220	Fire Service Applications VII	4
FIRES 222	Advanced Pump Operations	4

Total Credit Hours: 100

Fire Service AAS (100 Credits) - Evening Program

- 6 quarter AAS
- Maximum class size: 40
- Student to Teacher ratio: 20:1
- Enrollment Point: Winter and Summer quarters
- Both a day program and night program are offered regularly.
- This program offers a combinations of hands-on, and web-enhanced courses. See course descriptions for more information.
- Student are responsible for purchasing fire fighting boots, helmets, gloves, and uniforms.
- Industry required certification exams (FFI, HazMat, and EMT) are made available to students.
- Students use industry specific equipment in the program such as; ladders, fire engines, breathing apparatus and equipment needed for structural fires.
- Bates Partners with multiple Fire Departments across the region in order to place our students in jobs and/or apprenticeships. Likewise, Bates is recognized by area agencies as a great training opportunity for their currently employed fire fighters.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

FIRES 101	Orientation to Fire Service	2
FIRES 102	Firefighter Safety	4
FIRES 103	Fire Service Applications I	5
FIRES 104	Physical Fitness I	1
FIRES 106	Fire Hose and Appliances	3

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

FIRES 105	Introduction to Fire Science	3
FIRES 107	Fire Service Applications II	5
FIRES 108	Physical Fitness II	1
FIRES 109	Ladders	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

FIRES 110	Intermediate Fire Service	2
FIRES 111	Fires Service Applications III	4
FIRES 112	Physical Fitness III	1
FIRES 121	Wildland Firefighter	2
FIRES 125	Fire Vehicle Operations	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

FIRES 123	Fire Service Applications IV	5
FIRES 124	Physical Fitness IV	1
FIRES 201	Rescuer Procedures	3
FIRES 202	Advanced Fire Service	3
FIRES 215	Hazardous Materials I	1

Quarter 5

FIRES 203	Fire Service Applications V	5
FIRES 204	Physical Fitness V	1
FIRES 206	Employment Preparation	2
FIRES 207	Strategy, Tactics, and Incident Management	2
FIRES 208	Fires Service Applications VI	4
FIRES 216	Hazardous Materials II	2

Quarter 6

FIRES 209	Basic Life Support	1
FIRES 225	Emergency Medical Technician (EMT)	14

Electives

Electives

FIRES 212	Advanced Firefighter	4
FIRES 213	Physical Fitness VI	1

Total Credit Hours: 100

Fire Service Supervision AAS (111 Credits)

- 6 quarter AAS
- Maximum class size:
- Student to teacher ratio:
- Enrollment point:
- This degree offers a variety of modalities including face-to-face, Hybrid, Web-enhanced, and online courses. Please see course descriptions for further information.

Required Courses

Students Transferring in from Industry

Bates Course #	Course Name	Crosswalk Course	Credits	Notes
FIRES 101	Orientation to Fire Safety		2	Letter from employer or Industry cert. required
FIRES 102	Firefighter Safety	FIREA113	4	Current certificate required
FIRES 103	Fire Service Applications I	FIREA113	5	Current certificate required
FIRES 104	Physical Fitness I	FIREA113	1	Current certificate required
FIRES 105	Intro. to Fire Science		3	Letter from employer or Industry cert. required
FIRES 106	Fire Hose and Appliances	FIREA113	3	Current certificate required
FIRES 107	Fire Service Applications II	FIREA113	5	Current certificate required
FIRES 108	Physical Fitness II		1	Letter from employer or Industry cert. required
FIRES 109	Ladders		5	Letter from employer or Industry cert. required
FIRES 110	Intermediate Fire Service		2	Letter from employer or Industry cert. required

FIRES 111	Fire Service Applications III	FIREA113	4	Current certificate required
FIRES 112	Physical Fitness III		1	Letter from employer or Industry cert. required
FIRES 123	Fire Service Applications IV		5	Letter from employer or Industry cert. required
FIRES 124	Physical Fitness IV		1	Letter from employer or Industry cert. required
FIRES 203	Fire Service Applications V		5	Letter from employer or Industry cert. required
FIRES 207	Strategy, Tactics, and IMS		2	Letter from employer or Industry cert. required
FIRES 212	Advanced Firefighter	N-*FIREA141	4	Current certificate required
FIRES 213	Physical Fitness VI	N-*FIREA141	1	Current certificate required
FIRES 216	Hazardous Materials (OP)	N-*FIREA171	2	Current certificate required
FIRES 230	Strategy and Tactics	APPFS101	5	Credits earned through Bates
FIRES 231	Protective Systems	APPFS102	5	Credits earned through Bates

FIRES 232	Hydraulics	APPFS103	5	Credits earned through Bates
FIRES 233	Building Construction	APPFS104	5	Credits earned through Bates
FIRES 234	Codes and Inspections	APPFS105	5	Credits earned through Bates
FIRES 240	Fire Instructor	APPFS240	3	Credits earned through Bates, or IFSAC/Pro Board Professional Fire Cert.
FIRES 241	Fire Safety Officer	APPFS241	2	Credits earned through Bates, or IFSAC/Pro Board Professional Fire Cert., National Fire Academy
FIRES 242	Fire Officer I	APPFS242	5	Credits earned through Bates, or IFSAC/Pro Board Professional Fire Cert.
FIRES 243	Fire Officer II	APPFS243	5	Credits earned through Bates, or IFSAC/Pro Board Professional Fire Cert.

General Education	ENG101, MATH100+, HUM/SS/NS/O	15	Credits earned through Bates,5 credits from each area

Students not Already Employed in Industry

FIRES 101	Orientation to Fire Service	2
FIRES 102	Firefighter Safety	4
FIRES 103	Fire Service Applications I	5
FIRES 104	Physical Fitness I	1
FIRES 105	Introduction to Fire Science	3
FIRES 106	Fire Hose and Appliances	3
FIRES 107	Fire Service Applications II	5
FIRES 108	Physical Fitness II	1
FIRES 109	Ladders	5
FIRES 110	Intermediate Fire Service	2
FIRES 111	Fires Service Applications III	4
FIRES 112	Physical Fitness III	1
FIRES 123	Fire Service Applications IV	5
FIRES 124	Physical Fitness IV	1
FIRES 203	Fire Service Applications V	5
FIRES 207	Strategy, Tactics, and Incident Management	2
FIRES 212	Advanced Firefighter	4
FIRES 213	Physical Fitness VI	1
FIRES 216	Hazardous Materials II	2
FIRES 230	Fire Protection Strategies and Tactics	5
FIRES 231	Fire Protection Systems	5
FIRES 232	Fire Protection Hydraulics	5
FIRES 233	Building Construction	5
FIRES 234	Codes and Inspections	5
FIRES 240	Fire Instructor	3
FIRES 241	Fire Safety Officer	2
FIRES 242	Fire Officer I	5
FIRES 243	Fire Officer II	5
		Subtotal: 96

Subtotal: 96

General Education Requirements

Communications (5 Credits Required)

ENGL 175	Professional Writing	5
ENGL& 101	English Composition I	5
ENGL& 235	Technical Writing	5
		Subtotal: 5

Quantitative (5 Credits Required)

MATH 171	Technical Math	5
MATH 172	Business Math	5
MATH& 107	Math in Society	5
MATH& 141	Precalculus I	5
MATH& 142	Precalculus II	5
MATH& 146	Statistics	5
MATH& 151	Calculus I	5
MATH& 152	Calculus II	5
MATH& 153	Calculus III	5
		Subtotal: 5

Humanities/Social Sciences/Natural Sciences/Other (5 Credits Required)

BIOL& 160	General Biology	5
BIOL& 175	Human Biology with Lab	5
BIOL& 241	Human Anatomy and Physiology I	5
BIOL& 242	Human Anatomy and Physiology II	5
BIOL& 260	Microbiology	5
BUS& 101	Introduction to Business	5
BUS& 201	Business Law	5
CHEM& 121	General Chemistry	5
CHEM& 131	Introduction to Organic/Biochemistry	5
CMST 152	Intercultural Communication	5
CMST& 102	Introduction to Mass Media	5
CMST& 210	Interpersonal Communication	5
CMST& 220	Public Speaking	5
CMST& 230	Small Group Communications	5
CMST& 240	Culture & Diversity in Health Care	5
ECON& 201	Microeconomics	5
ECON& 202	Macroeconomics	5
HIST 101	A History of Science and Technology	5
HIST& 146	United States History I	5
HIST& 147	United States History II	5
HIST& 148	United States History III	5
HUM& 101	Introduction to Humanities	5
NUTR& 101	Intro to Nutrition	5
PHYS& 114	Introductory Physics I (Algebra based Physics)	5
PHYS& 221	Engineering Physics I w/LAB	5
PHYS& 222	Engineering Physics II w/LAB	5
PHYS& 223	Engineering Physics III w/LAB	5
POLS& 101	Introduction to Political Science	5
PSYC& 100	General Psychology	5
PSYC& 200	Lifespan Psychology	5
SOC& 101	Introduction to Sociology	5

Subtotal: 5

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Subtotal: 15

Total Credit Hours: 111

Fire Recruit Academy Certificate of Training (22 Credits)

1 quarter Certificate of Training

Required Courses

Fire Recruit Academy Certificate of Training (22 Credits)

FIRES 102	Firefighter Safety	4
FIRES 103	Fire Service Applications I	5
FIRES 104	Physical Fitness I	1
FIRES 106	Fire Hose and Appliances	3
FIRES 107	Fire Service Applications II	5
FIRES 111	Fires Service Applications III	4

Total Credit Hours: 22

Wildland Firefighter Certificate of Training (2 Credits)

1 quarter Certificate of Training

Required Courses

Wildland Firefighter Certificate of Training (2 Credits)

FIRES 121	Wildland Firefighter	2

Total Credit Hours: 2

Program Learning Outcomes

1. Meet the minimum academic training requirements of the Standard for Fire Fighter Professional Qualifications (Fire Fighter I)
2. Identify laws, regulations, codes and standards that influence fire department operations
3. Identify regulatory and advisory organizations that create laws and codes in the areas of fire prevention, building codes and ordinances, and firefighter health and safety
4. Analyze the cause of fire to determine extinguishing agents and methods
5. Differentiate between the stages of the fire and fire development and compare methods of heat transfer
6. Calculate flow requirements for fire apparatus
7. Apply mathematic formulae to hydraulics problems
8. Maintain fire apparatus and equipment
9. Identify the common types of building construction and conditions associated with structural collapse and firefighter safety
10. Use the Incident Command System to manage a wide variety of planned and un-planned incidents
11. Apply the principles of interpersonal communication, cooperative teamwork, supervision and management for leadership in the fire service

Heating, Ventilation, Air Conditioning and Refrigeration Technician

CIP Code

47.0201

This program offers hands-on, in-person courses. See course descriptions for more information.

Program Description:

Students prepare for certified entry-level employment in the heating, ventilation, air conditioning, and refrigeration industry. The technical skills acquired in this program may be applied in areas such as air conditioning, systems controls, energy management systems, heating and ventilation technicians, and sales. For those individuals already in the HVAC/R trade, customized training to upgrade skills is also provided, as well as applicable sustainable construction practices. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

HVAC/R Technician AAS (109 Credits)

Plan Code: HRMHTAPT

- 6 quarter AAS
- Maximum class size:
- Student to teacher ratio:
- Enrollment point: Fall, Winter, Spring, Summer
- This is a primarily face-to-face program with some Online, Hybrid, and Web-enhanced courses.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

HVAC 150	Introduction to Tools and Fasteners	1
HVAC 151	OSHA 30-hour Construction Industry Outreach Training Program	4
HVAC 152	Basic First Aid and CPR	1
HVAC 153	Basic Electricity, Magnetism	2
HVAC 154	Types of Electrical Motors and Applications	4
HVAC 155	Motor Controls & Troubleshooting	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

HVAC 156	Theory of Heat	2
HVAC 157	Introduction to Automatic Controls, Troubleshooting	3
HVAC 158	Indoor Air Quality, Advanced Controls	3
HVAC 159	Electric & Oil Heat	4
HVAC 160	Gas & Hydronic Heat	3
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

HVAC 161	Refrigeration, Oil Chemistry, Management, Recovery	2
HVAC 162	EPA 608 Universal, Leak Detection, System Evacuation	3
HVAC 163	Tubing, Piping and Brazing	2
HVAC 164	System Charging	4
HVAC 165	Refrigeration System Components	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

HVAC 251	Load Calculations & Duct Design	4
HVAC 260	Operating Conditions, Introduction to Drafting	4

And choose:

WBAS101 (p. 394)	Welding Basics	8

OR these courses:

HVAC 206 (p. 328)	Basic Metal Working	2
HVAC 207 (p. 329)	Basic Layout & Patterns	2
HVAC 208 (p. 329)	Fabrication Practices	2
HVAC 209 (p. 329)	Load Calucation, Duct Design, Air Balance	2

Quarter 5

HVAC 261	Special Refrigeration Systems	4
HVAC 262	Heat Pump Systems, Air and Geothermal	4
HVAC 263	Domestic Appliances	4
HVAC 264	Commercial Refrigeration Systems & Troubleshooting	4

Quarter 6

HVAC 265	Comfort, Psychometrics & Energy Auditing	4
HVAC 266	Troubleshooting	5
HVAC 267	Chilled Water Systems	3
HVAC 268	Operating, Maintenance, Troubleshooting Chilled Water Systems	4

Total Credit Hours: 109

HVAC/R Support Technician Certificate of Competency (94 Credits)

Plan Code: HRMHVC90

6 quarter Certificate of Competency

Required Courses

Quarter 1

HVAC 150	Introduction to Tools and Fasteners	1
HVAC 151	OSHA 30-hour Construction Industry Outreach Training Program	4
HVAC 152	Basic First Aid and CPR	1
HVAC 153	Basic Electricity, Magnetism	2
HVAC 154	Types of Electrical Motors and Applications	4
HVAC 155	Motor Controls & Troubleshooting	3

Quarter 2

HVAC 156	Theory of Heat	2
HVAC 157	Introduction to Automatic Controls, Troubleshooting	3
HVAC 158	Indoor Air Quality, Advanced Controls	3
HVAC 159	Electric & Oil Heat	4
HVAC 160	Gas & Hydronic Heat	3

Quarter 3

HVAC 161	Refrigeration, Oil Chemistry, Management, Recovery	2
HVAC 162	EPA 608 Universal, Leak Detection, System Evacuation	3
HVAC 163	Tubing, Piping and Brazing	2
HVAC 164	System Charging	4
HVAC 165	Refrigeration System Components	5

Quarter 4

HVAC 206	Basic Metal Working	2
HVAC 207	Basic Layout & Patterns	2
HVAC 208	Fabrication Practices	2
HVAC 209	Air Balance & Duct Sizing	2
HVAC 251	Load Calculations & Duct Design	4
HVAC 260	Operating Conditions, Introduction to Drafting	4

Quarter 5

HVAC 261	Special Refrigeration Systems	4
HVAC 262	Heat Pump Systems, Air and Geothermal	4
HVAC 263	Domestic Appliances	4
HVAC 264	Commercial Refrigeration Systems & Troubleshooting	4

Quarter 6

HVAC 265	Comfort, Psychometrics & Energy Auditing	4
HVAC 266	Troubleshooting	5
HVAC 267	Chilled Water Systems	3
HVAC 268	Operating, Maintenance, Troubleshooting Chilled Water Systems	4

Total Credit Hours: 94

Program Learning Outcomes

Outcomes

Demonstrate analysis, calculation, construction and troubleshooting of complex systems.
Engage in safety practices.
Practice electrical wiring and diagram literacy.
Practice professional documentation and communication.
Understand cooling and refrigerant applications.
Understand heating applications.
Use general HVAC, trade techniques and tools.
Work in teams/groups to accomplish shop/lab projects.

Information Technology Specialist

CIP Code

11.0901

Courses in this program are in hybrid format.

Program Description:

Information technology specialists are an integral part of nearly every industry in today's technology-dominated

workplace. Students in this program prepare for careers that focus on computer and network support with an emphasis on both practical experience and certification preparation.
Students learn to diagnose and resolve computer problems with software and hardware, use virtualization and cloud computing technologies, and learn about computer security and network systems. Possible careers include IT support technician, desktop support specialist, help desk support, or network administrator. Students are encouraged to spend additional hours of study to obtain industry certifications such as from CompTIA, Microsoft, Amazon Web Services, or Cisco.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Information Technology Specialist AAS (92 Credits)

Plan Code: CSTIPAPT

The Information Technology Specialist Associate in Applied Science (AAS) is a six-quarter program. Courses in this program are in hybrid format. This modality supports industry skills and knowledge mastery through instructor-guided, hands-on learning and online engagement. The program typically enrolls in the Fall and Spring quarters. Students use various computer equipment, networking devices, and servers. Students are responsible for purchasing textbooks, virtual lab simulations, computer toolkits, basic networking tools, and USB drives. Laptops are available for student checkout on a first-come, first-served basis.

The program's technical core provides hands-on skills in information systems, networking, mobile devices, cloud and virtualization technologies, and security concepts. Graduates demonstrate proficiency in information technology, effective verbal, and written communications skills, and identify and summarize assumptions to draw logically valid conclusions. Core-related training relates to business, project, and team communication skills. Much of the curriculum is aligned with in-demand industry certifications through Computing Technology Industry Association (CompTIA), Microsoft, or Amazon Web Services.

Technology is a vital force in today's business and will continue to experience exponential changes in the future. As such, job opportunities in this field remain strong.

Graduates prepare for various information technology (IT) computer and networking careers, including Desktop Support Specialist, Computer Support Specialist, Technical Support Specialist, IT Specialist, IT Support Specialist, Help Desk Technician, and Network Support Analyst.

CIP: 11.0901

EPC: 527

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
COLL 101	College Success	5
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
Quarter 2		
CCNT 110	Fundamentals of Linux	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking	4

	Fundamentals	
INFO 117	Modern Desktop Support II	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

CCNT 150	Server I	4
CCNT 160	Cisco Routing & Switching	4
INFO 205	Security I	5

Quarter 5

CCNT 120	Cloud Computing	4
CCNT 210	Server II	4
INFO 206	Security II	5

Quarter 6

HREL 111	Interviewing and Career Success	5
INFO 220	Microsoft Services	4
INFO 290	Independent Project	4

Total Credit Hours: 92

Information Technology Specialist AAS-T (102 Credits)

Plan Code: CSTIPAAS

The Information Technology Specialist Associate in Applied Science Transfer (AAS-T) is a six-quarter program. Courses in this program are in hybrid format. This modality supports industry skills and knowledge mastery through instructor-guided, hands-on learning and online engagement. The program typically enrolls in the Fall and Spring quarters. Students use various computer equipment, networking devices, and servers. Students are responsible for purchasing textbooks, virtual lab simulations, computer toolkits, basic networking tools, and USB drives. Laptops are available for student checkout on a first-come, first-served basis.

The program's technical core provides hands-on skills in information systems, networking, mobile devices, cloud and virtualization technologies, and security concepts. Graduates demonstrate proficiency in information technology (IT), effective verbal, and written communications skills, and identify and summarize assumptions to draw logically valid conclusions. Core-related training relates to business, project, and team communication skills. Much of the curriculum is aligned with in-demand industry certifications through Computing Technology Industry Association (CompTIA), Microsoft, or Amazon Web Services.

Technology is a vital force in today's business and will continue to experience exponential changes in the future. As such, job opportunities in this field remain strong. Graduates prepare for various information technology computer and networking careers, including Desktop Support Specialist, Computer Support Specialist, Technical Support Specialist, IT Specialist, IT Support Specialist, Help Desk Technician, and Network Support Analyst.

CIP: 11.0901

EPC: 527

General Education Requirements

10 credits from the Communications Distribution (p. 54)

5 credits from the Quantitative Distribution (p. 54)

(p. 53)10 credits from the Sciences and Humanities Distribution (p. 54)

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Information Technology Specialist AAS-T (102 credits)

Quarter 1

INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
GENED	Communications (p. 54) or Quantitative (p. 54) (p. 54)	5

Quarter 2

CCNT 110	Fundamentals of Linux	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 54) or Quantitative (p. 54) (p. 54)	5

Quarter 3		
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking Fundamentals	4
INFO 117	Modern Desktop Support II	4
GENED	Communications (p. 54) or Quantitative (p. 54) (p. 54)	5
Quarter 4		
CCNT 150	Server I	4
CCNT 160	Cisco Routing & Switching	4
INFO 205	Security I	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5
Quarter 5		
CCNT 120	Cloud Computing	4
CCNT 210	Server II	4
INFO 206	Security II	5
GENED	Sciences-Humanities (p. 54) (p. 54)	5
Quarter 6		
HREL 111	Interviewing and Career Success	5
INFO 220	Microsoft Services	4
INFO 290	Independent Project	4

Total Credit Hours: 102

Information Technology Support Certificate of Competency (67 Credits)

Plan Code: CSTIUC45

The Certificate of Competency in Information Technology Support is a four-quarter program. Courses in this program are in hybrid format. This modality supports industry skills and knowledge mastery through instructor-guided, hands-on learning and online engagement. The program typically enrolls in the Fall and Spring quarters. Students use various computer equipment, networking devices, and servers. Students are responsible for purchasing textbooks, virtual lab simulations, computer toolkits, basic networking tools, and USB drives. Laptops are available for student checkout on a first-come, first-served basis.

The program's technical core provides hands-on skills in information systems, networking, and desktop virtualization. Graduates demonstrate proficiency in information technology (IT), effective verbal, and written communications skills, and identify and summarize assumptions to draw logically valid conclusions. Core-related training relates to business, project, and team communication skills. Much of the curriculum is aligned with in-demand industry certifications through CompTIA.

Technology is a vital force in today's business and will continue to experience exponential changes in the future. Job opportunities in this field remain strong. Graduates prepare for a variety of information technology computer careers, including Help Desk Technician, Technical Support Specialist, Desktop Support Specialist, and Information Technology Support.

CIP: 11.0901

EPC: 527

General Education Requirements

- 5 credits of COLL 101 College Success *
- 5 credits from the Quantitative Distribution

And

- 5 credits from the Communications Distribution OR Sciences and Humanities Distribution

**Note: COLL 101 fulfills either Communications or Humanities*

***Note: Students who have previously attended college or university may qualify to opt-out of the COLL 101 requirement. Please speak with your career advisor if you believe this may be an option for you. Students opting out of the COLL 101 course must take 5 credits from each of the three distributions: Communications, Quantitative, and Sciences/Humanities*

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Information Technology Specialist Certificate of Competence (67 Credits)

Quarter 1		
COLL 101	College Success	5
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
Quarter 2		
CCNT 110	Fundamentals of Linux	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
CCNT 130	Server Administration	4
CCNT 140	Cisco Networking Fundamentals	4
INFO 117	Modern Desktop Support II	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
CCNT 150	Server I	4
HREL 111	Interviewing and Career Success	5
INFO 205	Security I	5

Outcomes

Implement computer-based solutions for desktop and laptop computers to install, troubleshoot, configure, and maintain hardware components and core software applications.

Troubleshoot problems with wired and wireless networks, printers, video, storage, computer memory, and computer processing units.

Perform essential network systems administration skills related to server operating systems, including user management, resource sharing, network protocols, and computer and information security.

Practice communication, problem-solving, and ethical decision-making skills through the use of appropriate technology and with an understanding of the business environment.

Total Credit Hours: 67

Computer Repair Technician Certificate of Training (26 credits)

Plan Code: CSTCRC20

This is a two-quarter Certificate of Training credential that offers courses within the Information Technology Specialist program. Courses in this program are in hybrid format. The program typically enrolls in the Fall and Spring quarters. Students will use a variety of computer equipment. Students are responsible for purchasing textbooks, virtual lab simulations, a computer toolkit, basic networking tools, and USB drives. Laptops are available for student checkout on a first-come, first-served basis.

The program's technical core provides hands-on skills with computer systems, basic networking concepts, mobile devices, cloud, and virtualization concepts. Much of the curriculum is aligned with in-demand industry certifications through Computing Technology Industry Association (CompTIA).

Technology is a vital force in today's business and will continue to experience exponential changes in the future. Job opportunities in this field remain strong. Graduates prepare for various information technology computer careers, including Help Desk Technicians and Technical Support Specialists.

CIP: 11.0901

EPC: 527

Computer Repair Technician Certificate of Training (26 credits)

Quarter 1		
INFO 102	IT Applications	4
INFO 104	IT Systems I	5
INFO 118	Cloud & Virtualization Technologies	4
Quarter 2		
CCNT 110	Fundamentals of Linux	4
INFO 105	IT Systems II	5
INFO 116	Modern Desktop Support I	4

Outcomes

Apply efficient use of core business applications to solve business problems effectively.
Evaluate and implement computer-based solutions to install, troubleshoot, configure, and maintain computer-based hardware and software applications.
Practice communication, problem-solving, and decision-making skills through the use of appropriate technology and with an understanding of the business environment.
Apply and summarize research-based knowledge and analyze and interpret data to draw valid conclusions in the context of the program's discipline.

Total Credit Hours: 26

Program Learning Outcomes

Outcomes

Implement computer-based solutions for desktop and laptop computers to install, troubleshoot, configure, and maintain hardware components and core software applications.
Troubleshoot problems with wired and wireless networks, printers, video, storage, computer memory, and computer processing units.
Perform client-side virtualization and perform cloud computing configuration of servers, storage, databases, networking, and services.
Perform essential network systems administration skills related to server operating systems, including user management, resource sharing, network protocols, and computer and information security.
Configure and manage network infrastructure, troubleshooting procedures, and network connectivity devices on-premise or in the cloud.
Identify computer and network security concepts, threats, attacks, vulnerabilities, operations and incident response, cryptographic concepts, governance, risk, and compliance.
Practice communication, problem-solving, and ethical decision-making skills through the use of appropriate technology and with an understanding of the business environment.
Apply and summarize research-based knowledge and analyze and interpret data to draw valid conclusions in the context of the program's discipline.

Mechanical Engineering Technology

Program Description:

Graduates are prepared with knowledge, problem-solving ability and hands-on skills to enter careers in the design, installation, manufacturing, testing, technical sales,

maintenance, and other endeavors typically associated with mechanical components and systems. This program emphasizes how things actually work, how they are made, and the realization that most mechanical components and assemblies become parts of complex systems, an important consideration realized at the beginning of the design process.

CIP Code:

15.0805

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Mechanical Engineering Technology AAS (90 Credits)

Plan Code: MCTMTAPT

Mechanical Engineering Technology Associate in Applied Science (AAS) program equips graduates with the knowledge, problem-solving, and hands-on skills to enter careers in the design, installation, manufacturing, testing, and other endeavors typically associated with mechanical components and systems. This program emphasizes how things work, how they are made, and how most mechanical components and assemblies become parts of complex systems.

CIP: 15.0805

EPC: 642

General Education Requirements

5 credits from the Communications Distribution

10 credits from MATH& 141 and MATH& 142

15 credits from the Sciences and Humanities Distribution, consisting of:

- 5 credits PHYS& 114
- 10 credits from Sciences and Humanities

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Mechanical Engineering Technology AAS (90 Credits)

First Quarter		
AMATH 170	Engineering Foundational Mathematics	5
ENGR& 111	Engineering Graphics I	5
ENGR& 112	Engineering Graphics II	5
Winter Quarter		
MET 111	Geometric Dimensioning and Tolerancing	5
MET 218	Introduction to 3 D Modeling	5
GENED	Communications (p. 53)	5
Spring Quarter		
MATH& 141	Precalculus I	5
MET 130	Manufacturing Methods	5
MET 260	Advanced CAD Operations	5
Summer Quarter		
MET 140	Mechanical Measurements	5
PHYS& 114	Introductory Physics I (Algebra based Physics)	5
MATH& 142	Precalculus II	5
Fall Quarter		
CEET 121	Statics & Mechanics of Materials	5
GENED	Sciences-Humanities (p. 53)	5
GENED	Sciences-Humanities (p. 53)	5
Final Quarter		
ENGR 296/ CEET 296/ETRIC 296/MET 296	Work-based Learning Experience	1-13
GENED	Sciences-Humanities (p. 53)	5

ENGR296 Work-based Learning Experience (or equivalent) - 10 Credits minimum required

Subtotal: 90

Quantitative General Education Courses for AAS Mechanical Engineering Technology

Quantitative

MATH& 141	Precalculus I	5
MATH& 142	Precalculus II	5

Engineering Technology Certificate of Training (15 Credits)

Plan Code: ETGETC01

1 quarter Certificate of Training

Required Courses

Engineering Technology Certificate of Training (15 Credits)

AMATH 170	Engineering Foundational Mathematics	5
ENGR& 111	Engineering Graphics I	5
ENGR& 112	Engineering Graphics II	5

Total Credit Hours: 15

Program Educational Objectives

1. Demonstrate an ability to function on multi-disciplinary teams in an engineering-focused environment.
2. Demonstrate an ability to communicate clearly and effectively in a diverse and technical environment.
3. Demonstrate an ability to manage time effectively working on engineering projects.
4. Demonstrate an ability to systematically make decisions as a member of an engineering team.

Program Learning Outcomes

Outcomes

1. Apply knowledge, techniques, skills, and modern mathematics, science, engineering, and technology tools to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with the engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication along with appropriate technical literature in well-defined technical and non-technical environments.
4. Conduct standard tests, measurements, and experiments.
5. Analyze and interpret the results of standard tests, measurements, and experiments.
6. Function effectively as a member of a technical team.

Motorcycle and Marine Technology

Program Description:

Students in the program prepare for careers in the Motorcycle and Marine industries. Technicians in these areas maintain and repair a variety of two- and four-cycle engines, power trains, and chassis. Motorcycle: Maintenance and repair of vehicles such as motorcycles, sport utility vehicles, all-terrain vehicles, scooters and generators. Marine: Maintenance and repair of outboard engines, personal watercraft and boat rigging. Employment may be in dealerships, independent repair shops, marinas, rental companies, resort maintenance, fleet repair facilities, government agencies and self-employment.

CIP Code

47.0606

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Motorcycle and Marine Technology Degree AAS (106 Credits)

Plan Code: SEMMMAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions

for more information.

- While in this program, students will have access to vehicles to practice on, motorcycles, outboards, quads, PWC, lifts for vehicles, and outboard tanks.
- Students will be responsible for purchasing their own basic hand tools.
- Multiple certificate options.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

POW 101	Introduction to Power Sports	3
POW 102	Power Sports Maintenance	5
POW 105	Brakes Service and Repair	5
POW 106	Tire Service and Repair	5

Quarter 2

POW 123	Carburetor Service and Repair	5
POW 154	Computerized System Basics	3
POW 155	Electronic Fuel Injection	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3

POW 150	Transmission Service and Repair	5
POW 151	Drive Train Service and Repair	5
POW 161	Chassis Service	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

POW 140	Fundamentals of Electricity	5
POW 141	Electrical Charging and Starting Systems	5
POW 142	Ignition Systems	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 5

POW 120	Engines - Failure Analysis	5
POW 121	Engine Repair Methods	5
POW 122	Engine Installation Methods	5

Quarter 6

ELECTIVES	Choose 15 crs. from below	15

Electives (15 Credits Required)

May choose:

POW162 (1-15 cr.) + POW296 (1-13 cr.) for a total of 15 credits

OR

POW296 (7 cr.) + WBAS101 (8 cr.) for a total of 15 credits

POW 162	Advanced Projects	1-15
POW 296	Work Based Learning	1-15
WBAS 101	Welding Basics	8
	Subtotal: 15	
	Subtotal: 15	

Total Credit Hours: 106

Chassis and Electrical Certificate of Competency (76 Credits)

Plan Code: SEMCEC45

4 quarter Certificate of Competency

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
POW 101	Introduction to Power Sports	3
POW 102	Power Sports Maintenance	5
POW 105	Brakes Service and Repair	5
POW 106	Tire Service and Repair	5
Quarter 2		
POW 123	Carburetor Service and Repair	5
POW 154	Computerized System Basics	3
POW 155	Electronic Fuel Injection	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
POW 150	Transmission Service and Repair	5
POW 151	Drive Train Service and Repair	5
POW 161	Chassis Service	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
POW 140	Fundamentals of Electricity	5
POW 141	Electrical Charging and Starting Systems	5
POW 142	Ignition Systems	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Total Credit Hours: 76

Engines and Electrical E/E Certificate of competency (76 Credits)

Plan Code: SEMEEC45

4 quarter Certificate of Competency

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
POW 101	Introduction to Power Sports	3
POW 102	Power Sports Maintenance	5
POW 105	Brakes Service and Repair	5
POW 106	Tire Service and Repair	5
Quarter 2		
POW 123	Carburetor Service and Repair	5
POW 154	Computerized System Basics	3
POW 155	Electronic Fuel Injection	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
POW 140	Fundamentals of Electricity	5
POW 141	Electrical Charging and Starting Systems	5
POW 142	Ignition Systems	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
POW 120	Engines - Failure Analysis	5
POW 121	Engine Repair Methods	5
POW 122	Engine Installation Methods	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Total Credit Hours: 76

Electrical Certificate of Training (15 Credits)

Plan Code: SEMELC01

1 quarter Certificate of Competency

Required Courses

Electrical Certificate of Training (15 Credits)		
POW 140	Fundamentals of Electricity	5

POW 141	Electrical Charging and Starting Systems	5
POW 142	Ignition Systems	5

Total Credit Hours: 15

Program Learning Outcomes

Outcomes
Demonstrate the ability to service and repair a variety of clutch and transmission related customer concerns
Demonstrate the ability to diagnose and service a variety of electrical related customer concerns
Demonstrate the ability to use a variety of tools specific to the Power Sports industry
Demonstrate the ability to service and repair a variety of drivetrain customer concerns
Demonstrate the ability to service tires on a variety of power sports applications
Demonstrate the ability to diagnose a variety of vehicle no start conditions
Demonstrate the ability to repair a variety of internal combustion engines
Demonstrate the ability to service brake systems on power sports vehicles
Demonstrate the ability to test a variety of fuel injection components
Demonstrate the ability to fill out all proper service documentation
Demonstrate the ability to diagnose engine related customer concerns
Demonstrate the ability to service a variety of suspension systems
Demonstrate the ability to diagnose and service carburetors
Demonstrate the ability to service a variety of vehicles
Demonstrate knowledge of the Power Sports Industry

Multi-Occupational Trades (MOT)

Description:

This program is designed to serve individuals completing approved Multi-Occupational Trades (MOT) programs at Bates Technical College. The degree option includes both general education requirements and the technical requirements of an MOT program. Content includes state approved joint MOT programs plus four general education courses (20 credits) in human relations/social sciences, communications, and mathematics. Successful completion of this degree may provide students/apprentices with skills necessary to advance into supervisory, inspector, instructor or other advanced positions.

*Requires completion of an MOT program at least 6,000 clock hours long plus a minimum of 432 hours of RSI, plus 200 hours (20 credits) of general education requirements.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

AJAC Advanced Manufacturing Apprenticeships

Industrial Maintenance/Automation Technician Apprenticeship AJAC

Plan Code:

IMMMAAPR

Program Description:

AJAC Advanced Manufacturing Apprenticeships' Industrial Maintenance Technician Apprentices work in a variety of industries in Washington State, including food processing, aerospace, maritime manufacturing, biomedical manufacturing, defense, space, and packaging and assembly.

Industrial Maintenance Technicians install, repair and maintain commercial or industrial machinery in buildings, a plant, or a manufacturing setting. These technicians ensure all machines function properly through troubleshooting and preventive maintenance service.

Apprenticeship Requirement

- Complete the AJAC Advanced Manufacturing Apprenticeships' Industrial Maintenance Technician program (4 years long)
- Hired by one of AJAC's partnering employers
- Complete 8,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

IMMA 101	Technical Drawings	5
IMMA 102	Lifting and Rigging	5
IMMA 103	Precision Machining	5
IMMA 121	Maintenance Welding	5
IMMA 122	Electrical Systems	5
IMMA 123	Machine Automation Theory	5
IMMA 201	Math for Industrial Maintenance	5
IMMA 202	Maintenance Machining	5
IMMA 203	Mechanical Systems	5
IMMA 221	Fluid Power Systems	5
IMMA 222	Materials, Processes, & References	5
IMMA 223	Mechatronics Capstone	5

Machining Apprenticeship AJAC

Plan Code:

MTCMAAPR

Program Description:

AJAC Advanced Manufacturing Apprenticeships' Machinist program reinforces manual and CNC machining skills along with computer aided design and precision measuring.

Machinists operate manually controlled and computer numerically controlled (CNC) machine tools such as lathes and milling machines, to cut and produce precision parts for machines, instruments, and tools. Machinists repair or produce parts using both manual and automated equipment with precise measurements. Essentially, a machinists' goal is to ensure effective production operations and optimize procedures.

Apprenticeship Requirement

- Complete the AJAC Advanced Manufacturing Apprenticeships' Machinist program (4 years long)
- Hired by one of AJAC's partnering employers
- Complete 8,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

APM 101	Precision Machining I	5
APM 102	Precision Machining II	5
APM 103	Engineering Drawing	5
APM 121	Shop Algebra	5
APM 122	Applied Geometry & Trigonometry	5
APM 123	CNC Operations & Setup	5
APM 201	GD&T	5
APM 202	Programming Mill	5
APM 203	Programming Lathe	5
APM 221	Materials, Processes & References	5
APM 222	Inspection	5
APM 223	Advanced Machining & Technology	5

Plastic-Process-Technician-Apprenticeship-AJAC

Plan Code:

PETPPAPR

Program Description:

AJAC Advanced Manufacturing Apprenticeships' Plastic Process Technician program reinforces machining, maintenance, and troubleshooting skills. A Plastic Process Technician's primary job is to set up, monitor and troubleshoot plastic injection-molding machines. This requires specialized knowledge of materials, specific tools, and equipment. Troubleshooting tasks might include dealing with inconsistent material, faulty equipment, human error, and preventing defects from occurring.

Apprenticeship Requirements

- Complete the AJAC Advanced Manufacturing Plastic Process Technician program program (3 years long)
- Hired by one of AJAC's partnering employers
- Complete 6,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

PPT 101	Math for Industrial Maintenance	5
PPT 102	Technical Drawings	5
PPT 103	Inspection	5
PPT 121	Precision Machining	5
PPT 122	Geometric Dimensioning and Tolerancing and Precision	5
PPT 123	Electrical Systems	5
PPT 201	Mechanical Systems	5
PPT 202	Fluid Power Systems	5
PPT 203	Maintenance Systems	5

Operating Engineers Regional Training JATC

Construction Equipment Operator Apprenticeship JATC

Plan Code:

CHOCEAPR

Program Description:

The Operating Engineers Regional Training apprentices are trained in careers in operating and maintaining heavy equipment and doing construction surveying

Apprenticeship Requirement

- Complete the the Operating Engineers Regional Training program (4 years long)
- Hired by one of the Operating Engineers Regional Training's partnering employers
- Complete 6,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

OPENG 211	Operating Engineers Apprenticeship 1st Year	0-36
OPENG 221	Operating Engineers Apprenticeship 2nd Year	0-32
OPENG 231	Operating Engineers Apprenticeship 3rd Year	0-30
OPENG 241	Operating Engineers Apprenticeship 4th Year	0-34

Pacific NW Ironworkers and Employers Local 86 Apprenticeship Committee

Ironworker Apprenticeship PNIE

Plan Code:

IROIRAPR

Program Description:

Pacific Northwest Ironworker & Employee Local #86 apprentices must be able to perform the rigorous manual labor required by the trade and have an ability to work safely at high elevations with a good sense of balance.

Ironworkers erect the structural framework for high rise buildings, bridges, power plants and towers. They also place reinforcing steel in concrete forms for roadways, foundations, and structures. Welding, ornamental, rigging and machinery moving are also a part of this trade.

Apprenticeship Requirements

- Complete the Pacific Northwest Ironworker & Employee Local #86 program (4 years long)
- Hired by one of the Pacific Northwest Ironworker & Employee Local #86's partnering employers
- Complete 8,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

IRON 211	Ironworkers Apprenticeship 1st Year	Variable 0-20
IRON 221	Ironworkers Apprenticeship 2nd Year	Variable 0-20
IRON 231	Ironworkers Apprenticeship 3rd Year	Variable 0-20
IRON 241	Ironworkers Apprenticeship 4th Year	Variable 0-20

Seattle Area Pipe Trades

HVAC/Refrigeration Mechanic Apprenticeship SAPHP

125Plan Code:

HRMHVAPR

Program Description:

The Seattle Area Pipe Trades' HVAC/Refrigeration programs trains apprentices to work safe, fast, and efficient. Apprentices are provided hands-on experience disassembling and reassembling equipment and learning how to diagnose and troubleshoot in a variety of settings including an electrical lab, a working supermarket environment, and rooftop.

Apprenticeship Requirements

- Complete the Seattle Area Pipe Trades HVAC/Refrigeration program (5 years long)
- Hired by one of the Seattle Area Pipe Trades' partnering employers
- Complete 10,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

REFR 111	HVACR Year 1 Week 1	5
REFR 112	HVACR Year 1 Week 2	5
REFR 113	HVACR Year 1 Week 3	5
REFR 114	HVACR Year 1 Week 4	5
REFR 115	HVACR Year 1 Week 5	5
REFR 121	HVACR Year 2 Week 1	5
REFR 122	HVACR Year 2 Week 2	5
REFR 123	HVACR Year 2 Week 3	5
REFR 124	HVACR Year 2 Week 4	5
REFR 125	HVACR Year 2 Week 5	5
REFR 131	HVACR Year 3 Week 1	5
REFR 132	HVACR Year 3 Week 2	5
REFR 133	HVACR Year 3 Week 3	5
REFR 134	HVACR Year 3 Week 4	5
REFR 135	HVACR Year 3 Week 5	5
REFR 141	HVACR Year 4 Week 1	5
REFR 142	HVACR Year 4 Week 2	5
REFR 143	HVACR Year 4 Week 3	5
REFR 144	HVACR Year 4 Week 4	5
REFR 145	HVACR Year 4 Week 5	5
REFR 150	HVACR Year 5	5

Total Credit Hours: 125

Plumber Apprenticeship SAPHP

Plan Code:

PTPPLAPR

Program Description:

The Seattle Area Pipe Trades' Plumber programs trains apprentices to install, remove, and maintain a variety of plumbing fixtures and pertinences. Apprentices will become proficient in plumbing code, drafting, and build design. They will learn sanitary waste piping, domestic potable water systems, water heaters and boilers, rainwater catchment, a wide variety of pumps, medical gas piping, backflow training, soldering, and brazing. Hands-on experience is provided in a state-of-the-art fixtures lab space featuring commercial residential and settings.

Apprenticeship Requirements

- Complete the Seattle Area Pipe Trades Plumber program (5 years long)
- Hired by one of the Seattle Area Pipe Trades' partnering employers
- Complete 10,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

PLMB 111	Plumber Year 1 Week 1	5
PLMB 112	Plumber Year 1 Week 2	5
PLMB 113	Plumber Year 1 Week 3	5
PLMB 114	Plumber Year 1 Week 4	5
PLMB 115	Plumber Year 1 Week 5	5
PLMB 121	Plumber Year 2 Week 1	5
PLMB 122	Plumber Year 2 Week 2	5
PLMB 123	Plumber Year 2 Week 3	5
PLMB 124	Plumber Year 2 Week 4	5
PLMB 125	Plumber Year 2 Week 5	5
PLMB 131	Plumber Year 3 Week 1	5
PLMB 132	Plumber Year 3 Week 2	5
PLMB 133	Plumber Year 3 Week 3	5
PLMB 134	Plumber Year 3 Week 4	5
PLMB 135	Plumber Year 3 Week 5	5
PLMB 141	Plumber Year 4 Week 1	5
PLMB 142	Plumber Year 4 Week 2	5
PLMB 143	Plumber Year 4 Week 3	5
PLMB 144	Plumber Year 4 Week 4	5
PLMB 145	Plumber Year 4 Week 5	5
PLMB 150	Plumber Year 5	5

Total Credit Hours: 125

Steamfitter Apprenticeship SAPHP

Plan Code:

PSFSTAPR

Program Description:

The Seattle Area Pipe Trades' Steamfitter program trains apprentices to assemble, install, and maintain pipes to carry water, steam, compressed air, cases and fluids needed for processing manufacturing, heating or cooling. At the end of the program, completers will be able to adapt and repair pipe systems and install appliances, heating and refrigeration units, and do all types of pipe welding.

Apprenticeship Requirements

- Complete the Seattle Area Pipe Trades Plumber program (5 years long)
- Hired by one of the Seattle Area Pipe Trades' partnering employers
- Complete 10,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

STMF 111	Steamfitter Year 1 Week 1	5
STMF 112	Steamfitter Year 1 Week 2	5
STMF 113	Steamfitter Year 1 Week 3	5
STMF 114	Steamfitter Year 1 Week 4	5
STMF 115	Steamfitter Year 1 Week 5	5
STMF 121	Steamfitter Year 2 Week 1	5
STMF 122	Steamfitter Year 2 Week 2	5
STMF 123	Steamfitter Year 2 Week 3	5
STMF 124	Steamfitter Year 2 Week 4	5
STMF 125	Steamfitter Year 2 Week 5	5
STMF 131	Steamfitter Year 3 Week 1	5
STMF 132	Steamfitter Year 3 Week 2	5
STMF 133	Steamfitter Year 3 Week 3	5
STMF 134	Steamfitter Year 3 Week 4	5
STMF 135	Steamfitter Year 3 Week 5	5
STMF 141	Steamfitter Year 4 Week 1	5
STMF 142	Steamfitter Year 4 Week 2	5
STMF 143	Steamfitter Year 4 Week 3	5
STMF 144	Steamfitter Year 4 Week 4	5
STMF 145	Steamfitter Year 4 Week 5	5
STMF 150	Steamfitter Year 5	5

Total Credit Hours: 125

Washington State Fire Fighters Joint Apprenticeship and Training Committee

Fire Fighter Apprenticeship WSFF

Plan Code:

FIGFIAPR

Program Description:

The Washington State Firefighters Joint Apprenticeship Training Committee (WSFFJATC) apprenticeship program consists of technical instruction which meets NFPA standards, accredited recruit academy training, hazardous materials training, EMT training, followed by on-the-job-training and academic instruction that supplements the craft of firefighting.

Apprenticeship Requirements

- Complete the Washington State Firefighters Joint Apprenticeship Training Committee (WSFFJATC) program (3 years long)
- Hired by one of the Washington State Firefighters Joint Apprenticeship Training Committee (WSFFJATC) program partnering fire departments
- Complete 6,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

APPFS 101	Fire Protection Strategy	5
APPFS 102	Fire Protection Systems	5
APPFS 103	Fire Protection Hydraulics	5
APPFS 104	Building Construction	5
APPFS 105	Fire Protection Code/Inspection	5
APPFS 203	Hazardous Materials On-Scene Incident Commander	2
APPFS 240	Fire Instructor I	3
APPFS 241	Incident Safety Officer	2
APPFS 242	Fire Officer I	5
APPFS 243	Fire Officer II	5
APPFS 255	Fire Instructor II	3
FIREA 113	Firefighter I	22
FIREA 141	Firefighter II	5
FIREA 171	Hazardous Materials Responder Operations Level	2

Western Washington Sheet Metal JATC

Sheet Metal Worker Apprenticeship JATC

Plan Code:

SMTSMAPR

Program Description:

The Western Washington Sheetmetal JATC apprentices learn how to weld, measure, cut, bend, and shape sheet metal into various forms for use in construction projects such as HVAC systems, ductwork, roofing, and building facades. Apprentices will also learn how to operate and maintain machinery and equipment used in sheet metal work. Sheetmetal is the only trade that designs and fabricates what they install from raw materials.

Apprenticeship Requirements

- Complete the Western Washington Sheetmetal JATC program (5 years long)
- Hired by one of the Western Washington Sheetmetal JATC's partnering employers
- Complete 9,000 on-the-job training (OJT)

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses:

Technical Core:

SHMET 211	SHEETMETAL APPRN 1ST YR	0-30
SHMET 212	SHEETMETAL APPRN 2ND YR	0-30
SHMET 214	SHEETMETAL APPRN 4TH YR	0-30
SHMET 215	SHEETMETAL APPRN 5TH YR	0-30
SHMET 231	SHEETMETAL APPRN 3RD YR	0-30

Nursing Assistant Certified

The Nursing Assistant Program prepares students for employment as a nursing assistant under the supervision of professional licensed nurses. Upon successful completion, students are eligible to take the Washington State written and manual skills examination to become a Nursing Assistant Certified (NAC).

CIP Code:

51.3902

Program Learning Outcomes

Outcomes
Demonstrate clear, accurate communication with clients, their families and healthcare staff
Promote client independence as appropriate for each individual.
Provide safe client care under the supervision of a nurse
Demonstrate how the understanding of anatomy and physiology informs the care of patients
Engage in ongoing professional development to maintain and improve knowledge and skills related to nursing assistant practice and patient care

Nursing Assistant Certified

Plan Code: NAANAC01

The Nursing Assistant Program prepares students for employment as a nursing assistant under the supervision of professional licensed nurses. Upon successful completion, students are eligible to take the Washington State written and manual skills examination to become a Nursing Assistant Certified (NAC).

Required Course

Nursing Assistant Certified Certificate of Training

CTNA 105	Certified Nursing Assistant Program	10

Total Credit Hours: 10

Occupational Therapy Assistant

Program Description:

Occupational therapy assistants work under the direction of occupational therapists to provide services to persons whose lives have been challenged due to injury, illness, developmental deficits or aging. Occupational therapy assistants view individuals in a holistic manner and help people prevent, lessen or overcome disabilities so they are able to function more independently in every aspect of daily living. Occupational therapy assistants use therapeutic activities and exercises to improve a client's skills for performing a variety of important everyday tasks safely and independently in their role at work, home, school, and in the community. Students in this program receive fundamental skills in occupational therapy and extensive clinical training. Successful completion of the program prepares students for careers as occupational therapy assistants in hospitals, outpatient clinics, rehabilitation centers, mental health centers, assisted living and nursing care facilities, and school systems.

CIP Code:

51.0803

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Occupational Therapy Assistant AAS (118 Credits)

Plan Code: OTAOTAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 1:12
- This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

- In this program, students will use a variety of adaptive and therapeutic equipment, assistive devices, and work simulation equipment.
- Student are responsible for purchasing textbooks, and professional attire.
- Upon completion of degree, student will take the NBCOT exam, and pay for their licensure

Required Foundation Prerequisites (20 Credits)

The OTA Program requires completion of foundational prerequisite courses, each with a grade of 3.0 or higher (with the exception of MATH requiring a minimum 2.5), PRIOR to starting program courses. Exceptions to the 3.0 grade requirement could be made by the OTA Program Director on an individual basis.

Communications (5 Credits Required)

Choose ONE of these courses:

ENGL 175	Professional Writing	5
ENGL& 101	English Composition I	5
ENGL& 235	Technical Writing	5

Quantitative (5 Credits Required)

MATH& 107	Math in Society	5

MATH&107 preferred. However, any 100-level MATH course will meet this requirement.

Natural Sciences (5 Credits Required)

Choose one of these two courses:

BIOL& 175	Human Biology with Lab	5
BIOL& 241	Human Anatomy and Physiology I	5

BIOL&170 "Human Anatomy" without Lab (not offered at BTC) may substitute as a transferred course to meet the natural science prerequisite requirement

Social Sciences (5 Credits Required)

PSYC& 200	Lifespan Psychology	5

Notes:

- PSYC&100 is a prerequisite for PSYC&200
- Abnormal Psychology (PSYC&220 or equivalent) may be substituted for PSYC&200 as a transferred course

Note: The foundation prerequisite courses meet the general education course requirements for the degree.

Required Courses

Prior to starting the OTA program courses, the following foundation prerequiste courses must be completed, each with a grade of 2.0 or higher.

Quarter 1

OTA 102	Health and Wellness and the OTA	3
OTA 103	Functional Movement	5
OTA 104	Therapeutic Use of Self	5
OTA 111	Introduction to Occupational Therapy	5

Quarter 2

OTA 105	Nervous System Function	4
OTA 108	Applied Experience I - A	1
OTA 110	Documentation Skills	3
OTA 112	Therapeutic Activities I	4
OTA 206	Devel. Disabilities - Treatment and Applications	8

Quarter 3

OTA 113	Therapeutic Activities II	4
OTA 203	Applied Experience I - B	1
OTA 204	Seminar - Applied Mental Health	1
OTA 205	Adaptive Technologies	4
OTA 210	Physical Disabilities - Treatment and Applications	8

Quarter 4

OTA 202	Psychosocial Dysfunctions : Treatment and Applications	8
OTA 212	Applied Experience - I - C	1
OTA 213	Seminar - Applied Physical Rehabilitation	1
OTA 231	OTA and Special Settings	4
OTA 232	Professional Issues for the OTA	4

Quarter 5

OTA 220	Clinical Fieldwork Level II - Rotation A	11
OTA 221	Clinical Fieldwork Level II - Seminar A	1

Quarter 6

OTA 222	Clinical Fieldwork Level II - Rotation B	11
OTA 223	Clinical Fieldwork Level II - Seminar B	1

Subtotal: 118

Program Learning Outcomes

Outcomes
Apply practice models, knowledge and skills through the use of clinical reasoning and thinking to a wide variety of settings, including hospitals, private practices, outpatient clinics, client homes, long term care facilities, retirement communities etc.
Demonstrate skill, knowledge and attitudes to successfully pass the national certification examination for occupational therapy assistants and to gain employment and cope successfully with ever-changing workforce requirements
Provide skilled treatment that is reflective of evidenced-based practice through the ability to locate current research information, evaluate and apply the information to the populations they serve
Describe the role of the occupational therapy assistant and the occupational therapist, the differences in the scope of practice, and the supervision guidelines, both legal and professional
Provide occupation-based/medically-based centered care that is reflective both of the environment the client is in, and also of the individuality and unique roles of that client
Establish therapeutic relationships with clients, families and caregivers that are representative of an understanding of their self and their impact on the therapeutic process
Demonstrate respect and professionalism in all patient interactions despite the differences in culture, beliefs about health and wellness, and lifestyle choices
Demonstrate professional behaviors with clients, families, and other healthcare personnel, including communication skills, good work habits and sound judgment

Phlebotomy

One quarter Certificate of Training

This program is established to meet the State of WA Dept. of Health Medical Assistant-Phlebotomist Certification requirements. It also meets the need for students to take the NHA National Certification exam. The course includes HIV/AIDS training, basic anatomy and physiology, medical terminology, how to avoid pre-analytical errors, and how to be successful in collecting blood samples. You will learn how to collect blood samples using all of the tools currently being used in the laboratory industry. Students will collect blood samples from fellow students as well. Allowing students to collect blood from you will help everyone in the class, to meet the objectives in the class. You will learn how to deal with age specific needs of patients, customer service, special collections, and non-blood related samples.

- Enrollment is limited to 24 participants
- Phlebotomy course format: Course lab and lectures will be held on-site. All assignments and quizzes are on Canvas, JB Learning, and Phlebotomy workbook.
- Textbook: Phlebotomy Essentials with Enhanced Access and Workbook, 8th ed.
- Per state application, students must be able to read/write in English.
- Students must have email.
- Students also need computer access to engage in Canvas assignments.

Basic Phlebotomy Certificate of Training (3 credits)

Plan Code: PHLPHC01

Required Courses

PNURS292

PNURS 292	Basic Phlebotomy	3
OR		
*AMA 132**	*Phlebotomy*	*3*

***AMA 132 is only for AMA Program students. Instructor permission required.**

Outcomes
Students learn to draw and process blood specimens for analysis.
Provide for specific needs of patients.
Provide excellent customer care.

Total Credit Hours: 3

Practical Nurse

CIP Code:

51.3901

This program is designed to prepare a student for a rewarding career as a Licensed Practical Nurse. Upon graduation of this program and under the supervision of a registered nurse or a health care provider, the practical nurse will be able to provide evidence-based and safe care in a variety of health care settings such as hospitals, clinics, schools and long-term care facilities.

This program includes **two options**, an 80-credit Certificate of Competency (CoC) **or** a 90-credit Associate of Applied Science (AAS) that are in alignment with a Direct Transfer Agreement (DTA) with all nursing schools in the state of Washington. Admission into the nursing program is dependent upon the successful completion of each of the prerequisite courses listed below with a minimum cumulative GPA of 3.0 or higher. Exceptions to the 3.0 GPA requirement could be made by the Nursing Program Director on an individual basis. Note that the AAS option requires an additional 10 credits of prerequisite courses.

Upon successful completion of all the required pre-requisites and program courses, the student will be eligible to take the Practical Nurse licensure exam (the NCLEX). After passing the NCLEX, the student will obtain a license to practice as a Licensed Practical Nurse.

Clinical experiences are an essential part of learning and preparing to be a nurse. Students are expected to commute to clinical sites for clinical rotations and should be prepared to travel up to 50 miles each way. The hours for clinical rotations will vary throughout the program but will generally take place M-F 7am-7pm. In addition, students are required to successfully pass Washington State Department of Social and Health Services background check and criminal background check. For more information, contact the nursing department at 253-680-7316

In addition to tuition students are also responsible or purchasing additional educational materials such as textbooks, a uniform and other miscellaneous supply.

Program Mission

To prepare a diverse body of Nursing students to be safe and competent nurses in the community. The Bates Technical College Practical Nurse Program strives to enrich diverse communities, inspire life-long learning, and challenge for greater educational and career achievement.

Program Vision

To prepare nurses who are agents of change that reach diverse communities and connect them to quality and inclusive healthcare.

Program Values

1. Collaboration and Communication
2. Integrity and Accountability
3. Dignity and Respect
4. Diversity and Social Justice
5. Empathy and Compassion

For program costs and fees refer to the catalog TUITION AND FEES PAGE

Required foundational coursework to be completed prior the enrolling in Practical Nursing program:

Students must earn a cumulative GPA of 3.0 or higher in all prerequisite courses before entering core coursework.

Prerequisite Courses (Required for admission into CoC and AAS options):

- ENGL& 101 English Composition I
- BIOL& 160 General Biology
- BIOL& 241 (must include lab) Anatomy and Physiology
- BIOL& 242 (must include lab) Anatomy and Physiology
- MATH& 146 (or higher) Basic Statistics
- PSYC& 100 General Psychology
- PSYC& 200 Psychology through the Lifespan

Additional Perquisite Courses (Required for admission into AAS option only):

Any **two of these course** options will satisfy the additional 10-credit prerequisites required for the Associate of Applied Science option:

- BIOL&260 Microbiology
- CHEM&121 Introduction to Chemistry
- NUTR&101 Nutrition

***Students must pass each course within the nursing core program with a 3.0 (80% in Canvas) or higher to proceed to the next quarter in the Practical Nursing Program. See the Bates Technical College Nursing Program Student Readmission Requirements. ***

Note: If you intend to further your education with an RN degree at another college, please ensure to review the program and prerequisite requirements of that

institution.

Practical Nurse AAS (90 Credits)

Plan Code: LPNPNAPT

Required Prerequisite Courses

Students must achieve a B/3.0 cumulative GPA or better in all prerequisite classes.

Students must follow the course map as listed below. 45 pre-req credits required along with 45 program credits.

Program Prerequisite Courses

NOTE: In addition, students are strongly encouraged, but not required, to complete CTNA 105 "Certified Nursing Assistant Program" 10 credits as part of the program prerequisites.

Quarter 1

BIOL& 160	General Biology	5
ENGL& 101	English Composition I	5
PSYC& 100	General Psychology	5

And choose from ONE of these courses:

CHEM& 121 (p. 234)	Intro to Chemistry	5
NUTR& 101 (p. 351)	Nutrition	5

Quarter 2

BIOL& 241	Human Anatomy and Physiology I	5
PSYC& 200	Lifespan Psychology	5

Quarter 3

BIOL& 242	Human Anatomy and Physiology II	5
MATH& 146	Statistics	5

And choose from ONE of these courses:

BIOL& 260 (p. 208)	Microbiology	5
CHEM& 121 (p. 234)	Intro to Chemistry	5
NUTR& 101 (p. 351)	Nutrition	5

Required Courses

Full-Time Program

Quarter 1

PNUR 151	Foundations of Nursing Practice	5
PNUR 152	Foundations of Nursing Practice Lab I	2
PNUR 153	Mental Health in Nursing Practice	3
PNUR 154	Medical Surgical Nursing I	3
PNUR 155	Nursing Simulation I	1
PNUR 156	Clinical I	1

Quarter 2

PNUR 157	Foundations of Pharmacology	2
PNUR 158	Medical Surgical Nursing II	5
PNUR 161	Maternal Health and Care of Children	3
PNUR 162	Nursing Simulation II	1
PNUR 169	Clinical II	2
PNUR 170	Foundations of Nursing Lab II	2

Quarter 3

PNUR 164	Medical Surgical Nursing III	6
PNUR 167	Nursing Simulation III	1
PNUR 171	Clinical III	4
PNUR 172	Transition to Professional Nursing Practice	4

Required Courses

Part-Time Program

Quarter 1

PNUR 151	Foundations of Nursing Practice	5
PNUR 152	Foundations of Nursing Practice Lab I	2
PNUR 155	Nursing Simulation I	1

Quarter 2

PNUR 154	Medical Surgical Nursing I	3
PNUR 157	Foundations of	2

	Pharmacology	
PNUR 170	Foundations of Nursing Lab II	2
Quarter 3		
PNUR 156	Clinical I	1
PNUR 158	Medical Surgical Nursing II	5
PNUR 162	Nursing Simulation II	1
Quarter 4		
PNUR 153	Mental Health in Nursing Practice	3
PNUR 161	Maternal Health and Care of Children	3
PNUR 169	Clinical II	2
Quarter 5		
PNUR 164	Medical Surgical Nursing III	6
PNUR 167	Nursing Simulation III	1
Quarter 6		
PNUR 171	Clinical III	4
PNUR 172	Transition to Professional Nursing Practice	4

Total Credit Hours: 90

Practical Nurse Certificate of Competency (80 Credits)

Plan Code: LPNPNC45

Program Prerequisite Courses

NOTE: In addition, students are strongly encouraged, but not required, to complete CTNA 105 "Certified Nursing Assistant Program" 10 credits as part of the program prerequisites.

Quarter 1

BIOL& 160	General Biology	5
ENGL& 101	English Composition I	5
PSYC& 100	General Psychology	5
Quarter 2		
BIOL& 241	Human Anatomy and Physiology I	5
PSYC& 200	Lifespan Psychology	5
Quarter 3		
BIOL& 242	Human Anatomy and Physiology II	5
MATH& 146	Statistics	5

Required Courses

Full-Time Program

Quarter 1		
PNUR 151	Foundations of Nursing Practice	5
PNUR 152	Foundations of Nursing Practice Lab I	2
PNUR 153	Mental Health in Nursing Practice	3
PNUR 154	Medical Surgical Nursing I	3
PNUR 155	Nursing Simulation I	1
PNUR 156	Clinical I	1
Quarter 2		
PNUR 157	Foundations of Pharmacology	2
PNUR 158	Medical Surgical Nursing II	5
PNUR 159	Clinical II	1
PNUR 160	Foundations of Nursing Lab II	3
PNUR 161	Maternal Health and Care of Children	3
PNUR 162	Nursing Simulation II	1
Quarter 3		
PNUR 164	Medical Surgical Nursing III	6
PNUR 167	Nursing Simulation III	1
PNUR 171	Clinical III	4
PNUR 172	Transition to Professional Nursing Practice	4

Required Courses

Part-Time Program

Quarter 1		
PNUR 151	Foundations of Nursing Practice	5
PNUR 152	Foundations of Nursing Practice Lab I	2
PNUR 155	Nursing Simulation I	1
Quarter 2		
PNUR 154	Medical Surgical Nursing I	3
PNUR 157	Foundations of Pharmacology	2
PNUR 170	Foundations of Nursing Lab II	2

Quarter 3		
PNUR 156	Clinical I	1
PNUR 158	Medical Surgical Nursing II	5
PNUR 162	Nursing Simulation II	1
Quarter 4		
PNUR 153	Mental Health in Nursing Practice	3
PNUR 161	Maternal Health and Care of Children	3
PNUR 169	Clinical II	2
Quarter 5		
PNUR 164	Medical Surgical Nursing III	6
PNUR 167	Nursing Simulation III	1
Quarter 6		
PNUR 171	Clinical III	4
PNUR 172	Transition to Professional Nursing Practice	4

Total Credit Hours: 80

Program Learning Outcomes

Outcomes

1. Nursing Care- Integrate patient centered care in all aspects of health care practice to provide safe, compassionate culturally and developmentally diverse care.
2. Clinical Judgement- Provide safe nursing care by applying current nursing science and clinical reasoning to deliver safe, evidence-based care.
3. Professional Behavior and Scope of Practice- Demonstrate integrity by understanding and upholding all ethical and legal principles of the LPN role. Practice and use professional communication with clients and associated health care team(s).
4. Health Promotion- Enhance and promote the client's health and well-being and prevent disease.
5. Collaboration- Actively participate and collaborate with the health care team to deliver patient-centered care and achieve the best outcomes for patients.
6. Quality Improvement - Integrate quality improvement and evidence-based practice to promote health of clients, families and communities.
7. Informatics - Incorporate health care informatics to improve safety and wellbeing of individuals and communities across health delivery systems.

Pre-Nursing DTA-MRP

Plan Code: **RENPNAS**

Description:

The Pre-Nursing Direct Transfer Agreement (DTA) Associate Degree is designed to prepare students for entry into Bachelor of Science in Nursing (BSN) programs. This program provides the foundational coursework necessary for a smooth transition to nursing schools, ensuring that students are well-prepared for advanced studies in nursing. The curriculum emphasizes essential subjects such as biology, chemistry, anatomy, physiology, and social sciences, which are critical for success in nursing education and practice.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Pre-Nursing DTA/MRP (90 Credits)

Plan Code: RENPNAS

Pre-Nursing DTA/MRP (90 Credits)

Quarter 1 (Fall-Spring)

BIOL& 160	General Biology	5
ENGL& 101	English Composition I	5
ELECTIVE	Humanities or Social Sciences List	5

Quarter 2 (Winter-Summer)

BIOL& 241	Human Anatomy and Physiology I	5
PSYC& 100	General Psychology	5
ENGL&	ENGL& 102 or ENGL& 235 (p. 304)	5

Quarter 3 (Spring-Fall)

BIOL& 242	Human Anatomy and Physiology II	5
CHEM& 121	General Chemistry	5
PSYC& 200	Lifespan Psychology	5

Quarter 4 (Winter-Summer)

CHEM& 131	Introduction to Organic/Biochemistry	5
MATH& 146	Statistics	5
NUTR& 101	Intro to Nutrition	5

Quarter 5 (Fall-Spring)

BIOL& 260	Microbiology	5
ELECTIVE	Humanities List	5
ELECTIVE	Humanities List	5

Quarter 6 (Winter-Summer)

ELECTIVE	Humanities List	5
ELECTIVE	Social Sciences List	5
ELECTIVE	Humanities or Social Sciences List	5

Subtotal: 90

Electives

*NOTE: Check with career advisor before registering for electives. Be sure to meet any prerequisites.

Humanities Electives List

CMST& 210	Interpersonal Communication	5
CMST& 220	Public Speaking	5
CMST& 230	Small Group Communications	5
HIST& 146	United States History I	5
HIST& 147	United States History II	5
HIST& 148	United States History III	5

Social Sciences Elective List

POLS& 101	Introduction to Political Science	5
SOC& 101	Introduction to Sociology	5

Sheet Metal Technology

6 quarter AAS

CIP Code

48.0506

This program offers a combinations of hands-on, hybrid, and online courses. See course descriptions for more information.

Program Description:

Bates offers the only program in the region that prepares students for apprenticeship employment in the sheet metal industry. Customer projects completed in the classroom, shop, and the field, provide students with the necessary foundational skills to succeed in this high demand and rewarding occupation. Instruction includes equipment operation, fabrication and installation of various ventilation systems, blueprint reading, computer-aided drafting, air distribution, and material handling. This is a pre-apprenticeship program for the Western Washington Sheet Metal Joint Apprenticeship Training Committee. Students who complete all required elements of the selected Sheet Metal Technology course offerings will be awarded direct entry into the Western Washington Sheet Metal JATC Local 66 building trades program. Students will be placed at the end of the out of work list. Prior educational credits are recognized upon entrance into the apprenticeship.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Sheet Metal Technology AAS (115 Credits)

Plan Code: SMTSTAPT

- 6 quarter AAS
- Maximum class size:
- Student to teacher ratio:
- Enrollment point:
- This degree is primarily in person and hands-on with some online, hybrid, and web-enhanced courses. See course descriptions for more details.
- Shop is fully equipped, well lit with a well maintained classroom area.

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
SHME 101	Introduction to Sheet Metal Technology	3
SHME 103	Fitting Fabrication I	7
SHME 105	Materials Technology	3
SHME 150	Hand Tools and Machines	5
Quarter 2		
SHME 107	Applied Math	5
SHME 151	Safety and Health	4
SHME 152	Drafting I	6
SHME 217	Energy Codes	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
SHME 112	Fitting Fabrication II	8
SHME 153	Architectural Sheet Metal	5
SHME 213	Introduction to Blueprint Reading	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
SHME 203	Blueprint Reading Applications	5
SHME 206	Complex Components Fabrication	5
SHME 250	Drafting II	7
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 5		
SHME 251	Duct Design and Air Balancing Concepts	5
SHME 252	Field Installation I	6
SHME 253	Field Installation II	6
Quarter 6		
SHME 254	Commercial Projects	6
WBAS 101	Welding Basics	8

Total Credit Hours: 115

Sheet Metal Technician Certificate of Competency (98 Credits)

Plan Code: SMTSRC45

6 quarter Certificate of Completion

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
SHME 101	Introduction to Sheet Metal Technology	3
SHME 103	Fitting Fabrication I	7
SHME 105	Materials Technology	3
SHME 150	Hand Tools and Machines	5

Quarter 2		
SHME 107	Applied Math	5
SHME 151	Safety and Health	4
SHME 152	Drafting I	6
SHME 217	Energy Codes	2
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
SHME 112	Fitting Fabrication II	8
SHME 153	Architectural Sheet Metal	5
SHME 213	Introduction to Blueprint Reading	4
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
SHME 203	Blueprint Reading Applications	5
SHME 206	Complex Components Fabrication	5
SHME 250	Drafting II	7
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 5		
SHME 251	Duct Design and Air Balancing Concepts	5
SHME 252	Field Installation I	6
WBAS 101	Welding Basics	8

Total Credit Hours: 98

Sheet Metal Production Support Certificate of Training (44 Credits)

Plan Code: SMTSPC20

3 quarter Certificate of Training

Required Courses

Quarter 1		
SHME 103	Fitting Fabrication I	7
SHME 105	Materials Technology	3
Quarter 2		
SHME 107	Applied Math	5
SHME 150	Hand Tools and Machines	5
SHME 217	Energy Codes	2
Quarter 3		
SHME 112	Fitting Fabrication II	8
SHME 253	Field Installation II	6
WBAS 101	Welding Basics	8

Subtotal: 44

Sheet Metal Residential Installer Certificate of Training (46 Credits)

Plan Code: SMTSRC20

3 quarter Certificate of Training

Required Courses:

Quarter 1		
SHME 120	Introduction to Sheet Metal Technology	3
SHME 124	Fitting Fabrication	4
SHME 125	Applied Math	3
SHME 150	Hand Tools and Machines	5
Quarter 2		
SHME 127	Prefabricated Components	2
SHME 128	Materials Handling Technology	2
SHME 129	Wood working Tools	1
SHME 130	Carpentry Installation	3
SHME 131	Air Properties Technology	1
SHME 132	Duct Installation	3
SHME 137	Duct Design Technology	3
Quarter 3		
SHME 133	Residential Venting Technology	2
SHME 134	Unit Operations	2
SHME 135	Code Principals	2
SHME 136	Gas Piping Technology	2
SHME 138	Preventive Maintenance	2
SHME 253	Field Installation II	6

Subtotal: 46

Program Learning Outcomes

1. Lay out, measure, and mark dimensions and reference lines on material
2. Use calculators, scribes, dividers, squares, and rulers
3. Fasten joints together with a variety of fasteners

4. Install a variety of assemblies: flashings, heating and air conditioning ducts, and furnace casings
5. Interpret blueprints relating to construction sites
6. Perform basic computer functions
7. Use shears, hammers, punches, or drills to fabricate or modify parts
8. Identify gauge types of sheet metal
9. Install section components
10. Drill and punch holes in metal for screws, bolts, and rivets
11. Develop positive interpersonal abilities to create a team environment in the workplace
12. Work independently as well as cooperatively in a sheet metal shop environment
13. Identify commonly used hand tools and machines for sheet metal fabrication
14. Interpret guidelines set forth by OSHA/WISHA/HAZ COM and occupation standards
15. Use calculators, hand tools and machines on sheet metal or paper for fabrication
16. Install a variety of components including outdoor metal flashings, gutters, and siding
17. Perform basic computer functions relating to duct design and CAD fabrication
18. Install a variety of components including HVAC ductwork, piping and equipment

Software Development

CIP Code:

11.0201

Program Description:

Instruction in the Software Development program includes designing, coding, and implementing software applications using a variety of programming languages to include SQL, Java, C Sharp, Python and JavaScript. Additionally, students build skills in problem-solving, communicating and working as a team. Business and Data Analytics concentration students develop skills with SQL, Business Intelligence, and Visualization while Software Development concentration students focus on web and mobile application development.

Software Development Business and Data Analytics AAS (90 Credits)

Plan Code: COPSTAPT

- 6 quarter AAS
- Maximum class size: 20
- Student to teacher ratio: 20:1
- Enrollment point: Fall, Spring
- This program is hybrid. See course descriptions for more information.
- In this program, students will use a variety of computer software to include Visual studio, SQL Server, Eclipse and Tableau.
- Students need to have access to a computer and internet connectivity.

General Education Requirements (15 or 20)

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

The Artificial Intelligence Track requires one more 5-credit course from any of the three areas.

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

SOFT 101	Introduction to Information Technology	5
SOFT 102	Programming Fundamentals	5
WEB 102	Web Development I	5

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 2

CS& 141	Computer Science 1 Java	5
DATA 101	Database Design and SQL	5
DATA 104	Excel for Analytics	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Choose 1 Specialization Track

Specialization - Data Analytics Track (50 credits)

Quarter 3

DATA 102	Advanced SQL	5
SOFT 121	C-Sharp I	5
SOFT 123	Web Programming w/JavaScript	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

DATA 205	Business Data Analytics I - SQL Server Administration	5
SOFT 204	Open Source Programming	5
SOFT 207	Web Application Development	5

Quarter 5

DATA 206	Business Data Analytics II- Intro to Business Intelligence	5
DATA 207	Business Data Analytics III - Visualization	5
SOFT 290	Capstone Project	5

Specialization - Software Development Track (50 credits)

Quarter 3

DATA 102	Advanced SQL	5
SOFT 121	C-Sharp I	5
SOFT 123	Web Programming w/JavaScript	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

SOFT 204	Open Source Programming	5
SOFT 207	Web Application Development	5
SOFT 210	Mobile Application Development I	5

Quarter 5

SOFT 144	Data Structures	5
SOFT 211	Mobile Application Development II	5
SOFT 290	Capstone Project	5

Specialization - Artificial Intelligence Track (50 Credits)

Quarter 3

DATA 102	Advanced SQL	5
SOFT 204	Open Source Programming	5
SOFT 213	Introduction to Machine Learning	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

SOFT 212	Advanced Python Programming	5
SOFT 214	Introduction to Deep Learning Fundamentals	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 5

DATA 207	Business Data Analytics III - Visualization	5
SOFT 290	Capstone Project	5
SOFT 215	Introduction to Neural Networks	5

Total Credit Hours: 90

Software Development, Business and Data Analytics AAS-T (100 Credits)

Plan Code: COPSDAAS

6 quarter AAST

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

(p. 53)10 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

SOFT 101	Introduction to Information Technology	5
SOFT 102	Programming Fundamentals	5
WEB 102	Web Development I	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 2

CS& 141	Computer Science 1 Java	5
DATA 101	Database Design and SQL	5
DATA 104	Excel for Analytics	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Choose 1 Specialization Track

Specialization - Data Analytics Track (60 credits)

Quarter 3

DATA 102	Advanced SQL	5
SOFT 121	C-Sharp I	5
SOFT 123	Web Programming w/JavaScript	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 4

DATA 205	Business Data Analytics I - SQL Server Administration	5
SOFT 204	Open Source Programming	5
SOFT 207	Web Application Development	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 5

DATA 206	Business Data Analytics II- Intro to Business Intelligence	5
DATA 207	Business Data Analytics III - Visualization	5
SOFT 290	Capstone Project	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Specialization - Software Development Track (60 credits)

Quarter 3

DATA 102	Advanced SQL	5

SOFT 121	C-Sharp I	5
SOFT 123	Web Programming w/JavaScript	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 4

SOFT 204	Open Source Programming	5
SOFT 207	Web Application Development	5
SOFT 210	Mobile Application Development I	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 5

SOFT 144	Data Structures	5
SOFT 211	Mobile Application Development II	5
SOFT 290	Capstone Project	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Specialization - Artificial Intelligence Track (60 Credits)

Quarter 3

DATA 102	Advanced SQL	5
SOFT 204	Open Source Programming	5
SOFT 213	Introduction to Machine Learning	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5

Quarter 4

SOFT 212	Advanced Python Programming	5
SOFT 214	Introduction to Deep Learning Fundamentals	5
GENED	Communications (p. 54) or Quantitative (p. 54) or Sciences-Humanities (p. 54) (p. 54)	5
GENED	Sciences-Humanities (p. 54)	5

Quarter 5

DATA 207	Business Data Analytics III - Visualization	5
SOFT 290	Capstone Project	5
SOFT 215	Introduction to Neural Networks	5
GENED	Sciences-Humanities (p. 54)	5

Total Credit Hours: 100

Software Development Elements Certificate of Competency (65 Credits)

Plan Code: COPSEC45

3-4 quarter Certificate of Competency

General Education Requirements

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1		
SOFT 101	Introduction to Information Technology	5
SOFT 102	Programming Fundamentals	5
WEB 102	Web Development I	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 2		
DATA 101	Database Design and SQL	5
DATA 104	Excel for Analytics	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 3		
DATA 102	Advanced SQL	5
SOFT 121	C-Sharp I	5
SOFT 123	Web Programming w/JavaScript	5
Quarter 4		
SOFT 207	Web Application Development	5
SOFT 290	Capstone Project	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Total Credit Hours: 65

Software Development Certificate of Training (20 Credits)

Plan Code: COPSDC01

1 quarter Certificate of Training

Required Courses

Software Development CoT (20 Credits)		
DATA 101	Database Design and SQL	5
SOFT 101	Introduction to Information Technology	5
SOFT 102	Programming Fundamentals	5
WEB 102	Web Development I	5

Total Credit Hours: 20

Program Learning Outcomes

- Write application software that makes efficient and secure use of operating system services
- Develop an information system using accepted software development processes
- Produce user applications using a specialized technology that builds upon fundamental software development practices
- Apply principles of human-computer interaction in the design of computer interfaces
- Analyze a problem and identify the appropriate data, hardware components and/or software requirements to develop a feasible solution
- Use current tools and practices that support the software documentation process
- Document system requirements and/or developing materials for clients in the proper use of hardware or software
- Work cooperatively and effectively in teams to accomplish a shared goal
- Analyze local and global information technology (IT) trends, while recognizing the influences of IT on cultural, economic, ethical, and legal issues and responsibilities
- Support the management of information systems
- Use industry standard digital media/multimedia hardware and software

Welding

CIP Code

48.0508

Program Description:

Students prepare for apprenticeship employment as welders, filling positions in industries including

shipbuilding, industrial construction, energy fields, sheet metal, and auto body. Extensive practical training in all aspects of welding is included as students work in the shop on a variety of welding projects. Upon completion of the welding competencies, students are encouraged to take the certification tests for the American Welding Society and the Washington Association of Building Officials. This program also provides extended learning for persons previously or currently employed in these professions. Note: Through an Opportunity Grant, special tuition and book funding is available to assist low-income adult students entering this program.

For program costs and fees refer to the catalog TUITION AND FEES PAGE.

Welding AAS (98-101 Credits)

Plan Code: WETWEAPT

- 6 quarter AAS
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program offers online, hybrid, web-enhanced, and face-to-face courses. Please see course descriptions for more information.
- Students in this program will use welding machines for most processes. They will also learn to use ventilation, air compressors, welding booths, oxy/fuel torches, plasma tables, track burning ops, and forklift operation.
- Both day and evening courses are offered as well as various welding certificates.
- Students will be responsible for purchasing their own welding hood, leather boots, leather jacket, leather gloves. For complete list, see instructors.

General Education Requirements (15 credits)

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

WELD 101	Safety Principles	2
WELD 104	Oxyacetylene Cutting	3
WELD 105	Introduction to Shielded Metal Arc Welding	5
WELD 117	Welding Symbols	5

Quarter 2

WELD 201	Introduction to Gas Tungsten Arc Welding	5
WELD 202	Gas Tungsten Arc Welding - Full Penetration	5
WELD 203	Gas Tungsten Arc Welding - Aluminum	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3 - Choose a Certificate Option

Quarter 3 - SMAW Certificate Option

WELD 108	Full Penetration Welds - Flat/Horizontal	5
WELD 109	Full Penetration Welds - Vertical/Overhead	5
WELD 110	Full Penetration Welds - Open Root	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3 - Wire Certificate Option

WELD 111	Introduction to Gas Metal Arc Welding	3
WELD 112	Gas Metal Arc Welding - Full Penetration	4
WELD 113	Gas Metal Arc Welding - Aluminum	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 4

WELD 114	Introduction to Flux Core Arc Welding	4
WELD 115	Flux Core Arc Welding - Full Penetration	5
WELD 207	Welding Certification Testing - Flux Core	5

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 5

WELD 205	Advanced Welding Applications - Pipe/SMAW	5
WELD 206	Advanced Welding Applications - Pipe/GTAW	5
WELD 210	Advanced Welding Applications - Project	5

Quarter 6

WELD 204	Welding Certification Testing - SMAW	5
WELD 208	Non-destructive Testing	2
WELD 295	Independent Projects	5

Total Credit Hours: 98-101

Welding Certificate of Competency (98-101 Credits)

Plan Code: WETWEC90

- 6 quarter CoC
- Maximum class size: 18
- Student to teacher ratio: 18:1
- Enrollment point: Fall, Winter, Spring, Summer
- This program offers online, hybrid, web-enhanced, and face-to-face courses. Please see course descriptions for more information.
- Students in this program will use welding machines for most processes. They will also learn to use ventilation, air compressors, welding booths, oxy/fuel torches, plasma tables, track burning ops, and forklift operation.
- Both day and evening courses are offered as well as various welding certificates.
- Students will be responsible for purchasing their own welding hood, leather boots, leather jacket, leather gloves. For complete list, see instructors.

General Education Requirements (15 credits)

5 credits from the Communications Distribution

5 credits from the Quantitative Distribution

5 credits from the Sciences and Humanities Distribution

Note: See a Career Advisor prior to choosing courses that meet general education requirements.

Required Courses

Quarter 1

WELD 101	Safety Principles	2
WELD 104	Oxyacetylene Cutting	3
WELD 105	Introduction to Shielded Metal Arc Welding	5
WELD 117	Welding Symbols	5

Quarter 2

WELD 201	Introduction to Gas Tungsten Arc Welding	5
WELD 202	Gas Tungsten Arc Welding - Full Penetration	5
WELD 203	Gas Tungsten Arc Welding - Aluminum	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3 - Choose a Certificate Option

Quarter 3 - SMAW Certificate Option

WELD 108	Full Penetration Welds - Flat/Horizontal	5
WELD 109	Full Penetration Welds - Vertical/Overhead	5
WELD 110	Full Penetration Welds - Open Root	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5

Quarter 3 - Wire Certificate Option

WELD 111	Introduction to Gas Metal Arc Welding	3
WELD 112	Gas Metal Arc Welding - Full Penetration	4
WELD 113	Gas Metal Arc Welding - Aluminum	5

GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 4		
WELD 114	Introduction to Flux Core Arc Welding	4
WELD 115	Flux Core Arc Welding - Full Penetration	5
WELD 207	Welding Certification Testing - Flux Core	5
GENED	Communications (p. 53) or Quantitative (p. 53) or Sciences-Humanities (p. 53)	5
Quarter 5		
WELD 205	Advanced Welding Applications - Pipe/SMAW	5
WELD 206	Advanced Welding Applications - Pipe/GTAW	5
WELD 210	Advanced Welding Applications - Project	5
Quarter 6		
WELD 204	Welding Certification Testing - SMAW	5
WELD 208	Non-destructive Testing	2
WELD 295	Independent Projects	5

Total Credit Hours: 98-101

Welder I Certificate of Training (30 Credits)

Plan Code: WETL1C20

2 quarter Certificate of Training

Required Courses

Quarter 1		
WELD 101	Safety Principles	2
WELD 104	Oxyacetylene Cutting	3
WELD 105	Introduction to Shielded Metal Arc Welding	5
WELD 117	Welding Symbols	5
Quarter 2		
WELD 108	Full Penetration Welds - Flat/Horizontal	5
WELD 109	Full Penetration Welds - Vertical/Overhead	5
WELD 110	Full Penetration Welds - Open Root	5

Subtotal: 30

Welder II Certificate of Tranining (28 Credits)

Plan Code: WETL2C20

2 quarter Certificate of Training

Required Courses

Quarter 1		
WELD 101	Safety Principles	2
WELD 114	Introduction to Flux Core Arc Welding	4
WELD 115	Flux Core Arc Welding - Full Penetration	5
WELD 207	Welding Certification Testing - Flux Core	5
Quarter 2		
WELD 111	Introduction to Gas Metal Arc Welding	3
WELD 112	Gas Metal Arc Welding - Full Penetration	4
WELD 113	Gas Metal Arc Welding - Aluminum	5

Total Credit Hours: 28

Program Learning Outcomes

Outcomes

Weld in (flat, horizontal, vertical, and overhead positions) using the basic welding processes SMAW, GMAW, FCAW, and GTAW
Read and interpret basic blueprints and welding symbols to fabricate components
Apply the principles of metallurgy during the welding process
Cut metals using (oxyfuel and, plasma, arc) cutting process
Apply the fundamentals of welding processes
Apply basic math and measurement
Follow industry safety practices
Perform metal layout processes

Course Descriptions

ACCT-Accounting

ACCT& 201 - Principles of Accounting I (5)

An introduction to the concepts and methods underlying the preparation of corporate financial statements using generally accepted accounting principles. Topics covered include the accounting cycle, cash, and receivables.

Distribution: Career Training. Offered: 1.

Outcomes
Explain how markets allocate, produce and distribute society's resources
Predict how government intervention impacts economic outcomes
Represent and understand economic concepts and outcomes in numerical and graphical form

ACCT& 202 - Principles of Accounting II (5)

A continuation of the concepts and methods underlying the preparation of corporate financial statements using generally accepted accounting principles. Topics covered include long-term assets, liabilities, stockholders' equity, statement of cash flows and financial statement analysis

Distribution: Career Training. Offered: 2.

Outcomes
Choose and perform financial calculations appropriate for a principles-level course
Comply with accounting rules and guidelines appropriate for a principles-level course
Perform financial statement analysis and draw appropriate conclusions

ACCT& 203 - Principles of Accounting III (5)

An introduction to the concepts and methods of managerial accounting and how accounting information is essential for management decisions. Topics covered include job costing, activity based costing, inventory management, cost - volume - profit relationships, budgets, short-term business decisions and capital investment decisions

Distribution: Career Training. Prerequisite: ACCT& 201 with minimum grade of 2.0. Offered: 3.

Outcomes
Communicate effectively in quantitative and qualitative terms
Use a range of techniques to perform analysis, synthesize information and draw conclusions
Utilize accounting information for decision making

ACCT 205 - Excel for Accounting (5)

This course focuses on how to use Excel to create accounting models which focus on solving accounting problems and completing accounting projects. Learn practical application for concepts emphasized in financial accounting and managerial accounting

Distribution: Career Training. Offered: 2.

Outcomes
Build models to solve various financial accounting problems
Prepare various management accounting schedules and reports
Use a range of techniques to perform analysis, synthesize information and draw conclusions

ACCT 207 - QuickBooks (5)

This course provides hands-on experience and practice in computerized accounting applications (QuickBooks) for small businesses. Use the general ledger, accounts payable, accounts receivable, inventory, invoicing and payroll modules

Distribution: Career Training. Offered: 3.

Outcomes
Comply with accounting rules and guidelines appropriate for a principles-level course
Perform the steps of the accounting cycle
Use accounting software to prepare various accounting schedules and reports

ACCT 220 - Payroll Accounting (5)

A comprehensive study of payroll concepts including compute wages and salaries, withholding for social

security and income taxes and unemployment compensation taxes, maintain payroll records and prepare the relevant tax forms.

Distribution: Career Training. Offered: 2.

Outcomes
Comply with accounting rules and guidelines appropriate for a principles-level course
Identify relevant provisions of employment law
Maintain payroll records and prepare related journal entries

ACCT 225 - Federal Income Tax (5)

An introduction to federal income tax for individuals including current tax law, preparation of individual income tax form 1040 and related schedules

Distribution: Career Training. Offered: 4.

Outcomes
Comply with accounting rules and guidelines appropriate for a principles-level course
Explain the ethical considerations inherently involved in federal income tax reporting
Identify relevant provisions of tax law

ACCT 230 - Governmental Accounting (5)

An introduction to the accounting and reporting requirements for governmental and non-profit entities. Covers the essentials of fund accounting and applies techniques to transactions in governmental units including governmental fund types, proprietary fund types, and fiduciary fund types

Distribution: Career Training. Offered: 3.

Outcomes
Comply with accounting rules and guidelines appropriate for a intermediate-level course
Describe the difference between nonprofit accounting and the accounting of for-profit entities
Record typical transactions within and between a variety of funds

AMA-Administrative Medical Assistant

AMA 110 - Computer Basics (1)

This course will provide the basic vocabulary and terminology related to computer and word processing applications. An introduction to computer hardware and software is provided. This course will help build confidence and skills in using computer technology.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Customize the Windows desktop
Gain knowledge to help purchase a personal computer
Identify basic computer components
Make backup copies of files
Save and retrieve files in the correct location
Utilize Windows applications

AMA 111 - Introduction to Word Processing (3)

This course is an introduction to the basic concepts of MS Word. The components that will be covered are document creation, editing and saving, formatting text and paragraphs, working with tables, etc. as related to healthcare.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Add graphics and visual elements
Create charts and supporting information
Create documents using special formats, columns, styles and outlines
Create medical documents according to Allied Healthcare standards
Create tables
Create, design and edit documents

AMA 112 - Fundamentals of Medical Terminology (4)

This course is an introduction to the first of a series of medical terminology courses associated with anatomy/physiology and the understanding of the disease process. Students use basic prefixes, suffixes, combining forms, and medical abbreviations.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrateknowledge of fundamental medical terminology word building
Pronounce, spell and define medical terms
Use medical terminology including roots, prefixes and suffixes

AMA 113 - Healthcare Communications (5)

This course focuses on the growing emphasis on customer service, the patient experience, cultural competence, quality improvement, patient safety, and corporate compliance that healthcare professionals deal with every day. Emphasis is placed on communicating appropriately, working well in teams, respecting and valuing differences, using limited resources efficiently, and interacting effectively with coworkers, patients, and guests.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Develop relationships, teamwork, and communication skills
Display personal traits of healthcare professionals
Display work ethic and performance
Identify employment and professional development opportunities
Identify the health care industry and the role students will play
Identify the key elements of professionalism
Interacts with others regarding cultural competence and patient care
Research practicum experience

AMA 114 - Introduction to the Health Care Profession (5)

This course is an introduction to the basic concepts of the administrative medical assistant profession with emphasis on professional behaviors as they relate to the patient-physician-medical assistant relationship.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Analyze industry's ethical/legal issues
Apply OSHA/WISHA safety guidelines
Display behaviors consistent with acceptable work habits, health habits and interpersonal attributes
Use the industry vocabulary

AMA 115 - Digital Medical Editing (3)

The course is an introduction to the processes used to transcribe a variety of medical correspondence and reports with emphasis on the development of proofreading and editing skills. Digital media is introduced.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Enter information from digital media onto medical records and forms
Transcribe from digital media
Utilize a variety of reference materials

AMA 116 - Medical Office Procedures (3)

This is a practical applications course that focuses on a variety of administrative medical tasks to include appointment scheduling, internet research, referral processes for treatment, and records management. Students are introduced to a medical office simulation project.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Discuss medical law, statutes, and legal documents related to the healthcare industry
Identify and discuss HIPAA rules
Manage health information
Perform patient reception duties in a medical office simulation project
Understand medical office communications

AMA 117 - Beginning Medical Terminology (4)

This course is an introduction to medical terminology with an emphasis on the Integumentary, Digestive, Respiratory, and Cardiovascular Systems. Prerequisite required: AMA 112

Distribution: Career Training. Prerequisite: AMA112. Offered: Winter, Summer.

Outcomes
Demonstrate knowledge of anatomy/physiology of the Integumentary, Digestive, Respiratory and Cardiovascular Systems
Pronounce, spell and define medical terms
Use Medical Terminology including roots, prefixes and suffixes related to body systems

AMA 118 - Administrative Medical Concepts (4)

This course focuses on the Administrative Medical office functions. Communication regarding patient appointments will be focused upon. Students will be introduced to proper telephone techniques, a variety of filing systems in the medical office, understanding how equipment and supplies are essential the office, and will learn the basic concepts of performing front-office reception duties in the medical office. Prerequisite: AMA 114.

Distribution: Career Training. Prerequisite: AMA114. Offered: Fall, Spring.

Outcomes
Create and edit patient medical records and documentation
Create and maintain medical filing systems
Demonstrate proper telephone techniques
Develop/maintain patient appointment schedules
Introduce patient education
Perform patient reception duties
Prepare patient consent forms
Use office equipment and supplies

AMA 119 - Advanced Medical Office Procedures (3)

This is an advanced practical applications course that focuses on a variety of administrative medical tasks. Students will continue their simulation project and will include designing a medical office waiting area as well as performing medical practice financials.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Define medical insurance and coding terminology
Differentiate among three common leadership/management styles
Explain the effects of coding compliance errors on the revenue cycle in the medical office setting
Explain, using account terms, the procedures for maintaining essential financial records
Perform patient reception duties in a medical office simulation project
Recognize and calculate charges for medical services and process patient statements based on the patient encounter form and the physicians fee schedule

AMA 120 - Introduction to Spreadsheets (3)

This course is an introduction to the basic concepts of MS Excel. Students will be performing basic calculations using formulas, formatting and printing worksheets, and creating powerful charts and graphs for the healthcare industry.

Distribution: Career Training. Offered: Fall/Spring.

Outcomes
Create and copy formulas
Create and modify charts
Documents created (as listed) will be relevant to Allied Healthcare specifications
Edit data in cells
Format and manage worksheets
Plan and create a worksheet and workbook
Sort data

AMA 121 - Intermediate Medical Terminology (4)

This is a continuance course focusing on medical terminology with an emphasis on the Blood, Lymph and Immune Systems; Musculoskeletal System, Urinary System, and Female Reproductive System. Prerequisite required: AMA 117

Distribution: Career training. Prerequisite: AMA117. Offered: Fall, Spring.

Outcomes
Demonstrate knowledge of anatomy/physiology of the Blood, Lymph and Immune Systems; Musculoskeletal System, Urinary System, and Female Reproductive System
Pronounce, spell, and define medical terms
Use Medical Terminology including roots, prefixes, and suffixes related to body systems

AMA 122 - Intermediate Administrative Medical Concepts (4)

This course is an introduction to administrative skills related to schedule management, insurance billing, coding, collections, and the financial management of a medical practice. Prerequisites: Successful completion of AMA 114 and AMA 118.

Distribution: Career Training. Prerequisite: AMA114, AMA118. Offered: Winter, Summer.

Outcomes
Complete a CMA-1500 Claim Form
Schedule patient appointments
Submit a Request for Prior Authorization
Create and Appointment Matrix
Locate a CPT and HCPCS code
Locate an ICD-10 code
Locate an ICD-9 code
Post charges, payments and adjustments
Prepare an Age Analysis
Process refunds to patients
Reconcile the bank statement

AMA 123 - Electronic Health Records (4)

This course introduces the concepts and history of Electronic Health Record software, including meaningful use. The students will be oriented in a hands-on EHR simulation utilizing Spring Charts software. Emphasis will be placed on the basic patient's chart to labs, tests, codes, and templates. Students will apply all aspects utilizing EHR computer software

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply knowledge by completing an EHR Practicum
Conceptualize standards and features of HER
Create office visit templates
Manage the Clinic Administration of HER
Perform EHR functions in the patient chart
Perform EHR functions of the office visit and clinical tools
Use the Electronic Health Record

AMA 124 - First Aid/CPR (1)

This course will fulfill the requirements for students to achieve their 2-year First Aid/CPR card required by the healthcare industry.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate Professional CPR Adult/Child/Infant 2 Person CPR
Identify the processes of an AED
Understand Blood borne pathogens

AMA 125 - Practice Management System Applications (2)

This course offers students an opportunity learn to use a medical practice management system (PMS) and practice a variety of practice management functions common to a healthcare facility. Students will practice with hands-on software in scheduling, billing, account balancing, and financial report analysis.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Enter charge transactions and patient payments in the PMS
Perform patience scheduling and entering patient information in the PMS
Post payments and create patient statements in the PMS
Process collections in the PMS

AMA 126 - Advanced Administrative Medical Concepts (4)

This course is an introduction to administrative skills related to schedule management, insurance billing, coding, collections, and the financial management of a medical practice.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Complete a CMA-1500 Claim Form
Schedule patient appointments
Submit a Request for Prior Authorization
Create an Appointment Matrix
Locate a CPT and HCPCS code
Locate an ICD-10 code
Locate an ICD-9 code
Post charges, payments and adjustments
Prepare an Age Analysis
Process refunds to patients
Reconcile the bank statement

AMA 127 - Medical Insurance and Reimbursement (4)

This course focuses on medical insurance terminology and processes for billing a variety of insurance types. They learn specifics of Medicaid, Medicare, TriCare, LI, and commercial insurance and analyze agency payment vouchers. Secondary insurance billing requirements, rebilling, and electronic billing are included.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Complete and process state and local medical forms
Complete/process Medicaid/CHAMPUS and Medicare forms
Define common insurance terms
Describe the managed care structure and reimbursement
Identify the medical billing cycle
Secure pre-authorization
Verify insurance coverage

AMA 128 - Advanced Medical Terminology - Pathophysiology (4)

This is an advanced medical terminology course with an emphasis on the Male Reproductive System, Endocrine System, Nervous System, and Special Senses. Prerequisite required: Successful completion of AMA112, AMA 117, and AMA121.

Distribution: Career Training. Prerequisite: AMA112, AMA117, AMA121. Offered: Winter, Summer.

Outcomes
Demonstrate knowledge of anatomy/physiology of the Male Reproductive System, Endocrine System, Nervous System, and Special Senses
Pronounce, spell, and define medical terms.
Use Medical Terminology including roots, prefixes, and suffixes related to body systems

AMA 129 - Medical Coding Applications (4)

This course is an introduction to coding of diagnoses and procedures of health care records with emphasis on coding for insurance reimbursement. Students learn to use both CPT and ICD-9-CM/ICD-10-CM classification manuals and reference materials. Prerequisite required: Successful completion of AMA 112, AMA 117, AMA 121, and AMA 128.

Distribution: Career Training. Prerequisite: AMA112, AMA117, AMA121, AMA128. Offered: Fall, Spring.

Outcomes
Apply knowledge of ICD-10-CM
Define the use of modifiers
Discuss the HCPCS coding applications
Identify the use of CPT to code procedures and services
Recognize symbols used in CPT
Use ICD-9-CM to code diagnostic findings

AMA 130 - Medical Office Supervision and Management (3)

This course will focus on developing practical skills in managing people and issues of supervision. Components will consist of building effective work teams, communication skills for supervisors, conflict resolution, managing change, and supervision principles in the healthcare setting.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply templates for creating your own practice
Apply the fundamentals of advertising and marketing for the medical practice
Define the revenue cycle
Identify the fundamentals of managing medical personnel
Performing an audit on the medical office

AMA 131 - Interview Techniques (3)

This course focuses on the interview techniques. Students will discuss different types of interview formats, brainstorm interview questions and answers, participate in mock interviews, and learn how to handle unexpected interview situations.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Create a variety of cover letters
Develop interview questions
Participate in mock interviews
Participate in taped interview sessions
Prepare a resume

AMA 132 - Phlebotomy (3)

This course provides instruction on how to be successful in collecting blood samples. The student will learn how to collect blood samples using all of the tools currently being used in the Laboratory industry. Collection of blood samples will be from fellow students as well as allowing blood to be drawn from students. Processing samples for analysis will be part of the curriculum. Students will learn how to deal with age specific needs of patients, customer service, special collections, and non-blood samples.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate skill and proficiency as an entry level phlebotomist
Identify basic principles and practices of phlebotomy
Provide examples of professionalism, integrity and service excellence that students can observe and follow

AMA 133 - HIV/BBP Prevention Education (1)

This course meets Washington State Department of Health objectives for the 4- and 7-hour HIV/Bloodborne Pathogens education requirement for credentialed healthcare providers and non-credentialed healthcare facility employees.

Distribution: Career Training. Offered: Fall/Spring.

Outcomes
Apply the HIV test information and pre and post counseling
Conceptualize the psychosocial issues of HIV
Define the etiology and epidemiology of HIV
Discuss the legal and ethical issues related to HIV
Identify the clinical manifestation and treatment of HIV
Identify transmission and infection control

AMA 134 - Healthcare Credentialing (2)

This course is an introduction to the necessary components of healthcare credentialing. State, Federal, and administrative requirements are addressed.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Identify federal requirements for healthcare credentialing
Identify state requirements for healthcare credentialing
Participate in on-site seminars provided by local healthcare experts

AMA 135 - Practical Applications (3)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The projects focus is on prior course work.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Achieve hands-on technical skills from previous learned coursework
Identify advanced healthcare applications in relation to the medical office

AMA 205 - Medical Claims Processing (4)

This course provides the student instruction in the processing and management of insurance claims for patients, providers, and insurance companies. The student will analyze and process the insurance claim, all the while checking for accurance and validity. Accurate record keeping and follow-up will be emphasized. HIPAA will be adhered to at all times. This course will be one of several that will summarize the test standards and information in order for the student to pass the National HealthCareer Billing and Coding Certification examination.

Distribution: Career Training.

Outcomes
Identlify major laws, regulations and administrative agencies relevant to medical billing and coding.
Apply procedures for transmitting claims to third-party payers.
Ensure accurate collection of appropriate patient demographic and insurance information.
Compare and contrast government and private insurance.
Adhere to HIPPA, the Stark Law, the Fair Debt Collection Act, and the False Claims Act.
Compare and contrast preauthorized, precertification and predetermination.

AMA 206 - Medical Billing & Coding Sims (4)

Students engage in a variety of activities that allow them to interact with medical billing and coding simulations. Case studies will allow students access to real-life scenarios they will encounter as medical billing and coding professionals. This course will be one of several that will summarize the test standards and information in order for students to pass the National HealthCareer Medical Billing and Coding Certification examination.

Distribution: Career Training.

Outcomes
Summarize the test standards and information in order to pass the National HealthCareer Medical Billing & Coding Certification Examination.
Apply Procedures for transmitting claims to third-party payers.
Abstract the medical documentation by applying knowledge of medical terminology and anatomy and physiology.
Verify consent forms are signed and contain all relevant information before the servicesw are rendered.
Identify how and where to access insurance verification information.
Identify the correct code to the highest level of specificity using appropriate ICD, CPT and modifiers, and HCPCS codes.

AMA 296 - Work-based Learning Experience (1-3)

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply classroom specific activities in the workplace environment
Apply examples of perfect attendance
Apply examples of professionalism, integrity, and excellence in the workplace environment

AMA 297 - Work-based Learning Seminar (1)

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meets with the students to provide support and assistance during the experience.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Discuss and support classroom specific activities in the workplace environment
Discuss and support examples of perfect attendance
Discuss and support examples of professionalism, integrity, and excellence in the workplace environment

AMATH-Mathematics

AMATH 170 - Engineering Foundational Mathematics (5)

This course is a modular web-enhanced progression of foundational mathematical concepts and computation: skills required for success in engineering technology fields of study. Math concepts are taught using STEM field contextual basis. Successful completion of this course is equivalent to completion of intermediate algebra and meets the pre-requisites for math courses requiring a MATH098 Pre-requisite.

Outcomes
Use a scientific calculator to make computations
Apply order of operations criteria to mathematical expressions
Use calculations involving fractions and decimals and apply them to measurements and engineering formulas
Perform computations involving exponents
Perform algebraic functions equivalent to intermediate algebra proficiency
Perform two dimensional graphing functions
Perform basic trigonometric calculations
Use formulas/make calculations related to basic geometric shapes

APM-Machining Apprenticeship AJAC

APM 101 - Precision Machining I (5)

Apprentices learn the fundamental safety, drawings, tools and manual machining skills required for a job in aerospace and advanced manufacturing. Students are introduced to the four basic methods for subtractive manufacturing: drilling, milling, turning and grinding and the requisite measuring skills to make a product from a drawing.

Offered: Winter, Spring, Summer, Fall.

APM 102 - Precision Machining II (5)

This course serves as an introduction to precision machining in the shop environment with a focus on basic, manual machining techniques, including feeds and speeds, and milling machines, drill presses and lathes. Apprentices learn about the identification and use of cutting tools, radius gauges and precision measuring tools, such as micrometers, height gauges, sine bar, protractor calipers, pin sets, gauge blocks, indicators, travel indicators, edge and center finders. In addition, students learn the theory behind basic manual machining techniques on mills, drill presses, lathes, and surface grinders. They also examine tooling theory, including tooling point fixtures and 3, 2, 1 tooling, tramming milling machine heads, dialing in a vise, dialing in holes, and dialing in a four jaw chuck and tail stock. Principles of climb and conventional milling and causes of chatter will also be addressed. Emphasis will be placed on shop safety, following a job plan, and using measurement tools and various cutters to produce machined metal parts. Use of personal protection equipment and practice in tool safety will be applied to the hands-on experience of completing a C-Clamp project.

Offered: Winter, Spring, Summer, Fall.

APM 103 - Engineering Drawing (5)

In this course, apprentices will learn to read and interpret technical drawings, schematics, sheet metal drawings, bills of materials, parts lists as well as practice basic drafting. Apprentices will begin by interpreting the basic elements of a drawing: line types, symbols, 3rd angle projection, principles of orthographic projection, and normal, detail, sectional, and auxiliary views. Apprentices will use authentic industry drawings to learn to interpret dimensioning and tolerancing on prints, GD & T per ASME Y14 Standards, welding symbols, surface finish, ADCNs, and DCNs. Drawings studied in this class will include machining, fabrication, sheet metal, assemblies and fluid power systems. Apprentices will also learn about various types of threads, fasteners, cams, and gears. Hands¿on activities in this course include creating various types of shop sketches such as creating an original drawing for a sheet metal product, and applying print¿reading knowledge to inspect a part.

Offered: Winter, Spring, Summer, Fall.

APM 121 - Shop Algebra (5)

This course covers the properties of real numbers, simplifying expressions and solving equations and proportions. It also covers the manipulation of algebraic formulas and their applications to shop problems such as calculation of cutting speed, RPM and cutting time.

Offered: Winter, Spring, Summer, Fall.

APM 122 - Applied Geometry & Trigonometry (5)

This course focuses on the fundamentals and applications of geometry and trigonometry. Topics include perimeters, area and volume, trigonometric ratios and function, and right angles and non-right angles. Students will learn relationships of lines, planes, angles, congruent and similar triangles, polygons and circles. Additional topics include special triangles and the Pythagorean Theorem.

Offered: Winter, Spring, Summer, Fall.

APM 123 - CNC Operations & Setup (5)

This course introduces basic CNC machine setup processes used on the mill and the lathe. Topics covered will include reading basic G&M codes, calculating work offsets, building tools, and setting tool offsets. Special emphasis will be on machine awareness and crash prevention.

Offered: Winter, Spring, Summer, Fall.

APM 201 - GD&T (5)

This course introduces apprentices to principles of geometric dimensioning and tolerancing (GD&T) governed by the ASME Y14.5 standard. Apprentices will learn to identify and interpret each of the GD&T controls for form, profile, orientation, location, and runout. Apprentices will learn to interpret symbols, datums, basic dimensions, material condition modifiers, and other GD&T concepts that are essential for the machinist. Hands-on activities will emphasize interpreting GD&T found on engineering drawings, as well as the setup, measuring, and inspection of a part or features with geometric tolerancing.

Offered: Winter, Spring, Summer, Fall.

APM 202 - Programming Mill (5)

In this course, apprentices learn the basics of G-code and CNC programming. Apprentices usually take this course in the 3rd year of the Machinist Apprenticeship Program. The curriculum was developed for a 12-week course format.

Offered: Winter, Spring, Summer, Fall.

APM 203 - Programming Lathe (5)

Apprentices will process the theory behind programming for the CNC Lathe and be able to hand write commands and write basic programs for mills using G&M codes. Students will apply basic G-codes (G00, G01, G02 and G03), canned cycles, drilling, cutter compensation commands and a variety of finishing cycles by both accurately hand writing G-code program for various engineering drawings and exploring how software tools that can aid in these programming processes (e.g. MasterCam). Students will also learn to verify programs and identify various syntax and logical problems in programming codes to become proficient at troubleshooting on the CNC Lathe.

Offered: Winter, Spring, Summer, Fall.

APM 221 - Materials, Processes & References (5)

In this course, apprentices will explore metallurgy, material properties and characteristics, related standards, and processes commonly used to manipulate materials. Apprentices will begin by learning about material composition and characteristics of the five basic metals: steel, stainless steel, cast iron, aluminum, and brass (copper). This course will then explore manufacturing processes used to manipulate metals, such as machining, casting, and forging, as well as processes that change their chemical composition, including heat treatment. The apprentices will also learn about and practice inspection techniques such as hardness testing and non-destructive testing (NDT) techniques with modern equipment. Hands-on projects for this course include materials testing, heat treatment, case hardening, casting, and material sample identification projects. Throughout the course, apprentices will research materials and processes in a shop reference, Machinery's Handbook.

Offered: Winter, Spring, Summer, Fall.

APM 222 - Inspection (5)

Delivering quality efficiently is the key to strong manufacturing. To be competitive, today¿s machinist must be able to effectively inspect parts in the shop with a variety of methods and instruments. This course focuses on the science and skill of measuring and inspection. They will learn to verify dimensions of size and position, surface finish, material hardness, threads, and other important elements. Apprentices will have hands-on practice using a variety of measuring instruments such as micrometers, calipers, precision gauges and coordinate measuring machines (CMMs). Apprentices will also learn techniques for inspection planning, first article inspection, in process inspection, and statistical process control. Instructors will reinforce the theory and technique of accuracy, precision and repeatability to help students develop an uncompromising attitude towards good inspection technique.

Offered: Winter, Spring, Summer, Fall.

APM 223 - Advanced Machining & Technology (5)

Apprentices will be introduced to a variety of advanced machining technologies currently available to machine shops. Apprentices will learn to identify machine parts manufactured by some of the different technologies available ¿ laser cutting, EDM, and waterjet ¿ as well as understand the advantages of each of these methods as well as when they are appropriate for use.

Offered: Winter, Spring, Summer, Fall.

APPFS-Fire Fighter Apprenticeship WSFF

APPFS 101 - Fire Protection Strategy (5)

Fire protection strategies and tactics the course examines strategic decisions and tactical operations guiding students through the process of problem identification and solutions response.

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire’s area of origin
Explain elements of fire cause determination

APPFS 102 - Fire Protection Systems (5)

Fire protection systems the course familiarizes fire service and other interested personnel with the types, arrangements, and operating principles of systems to address fire detection and alarm systems, smoke management systems, water supply, fire pumps, automatic sprinkler systems, standpipe and hose systems, special extinguishing systems, and portable fire extinguishers.

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire’s area of origin
Explain elements of fire cause determination

APPFS 103 - Fire Protection Hydraulics (5)

Fire protection hydraulics this course provides basic foundational topics in fire department hydraulics, explaining how and why water is discharged from nozzles at the correct pressures to effectively fight fires.

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire’s area of origin
Explain elements of fire cause determination

APPFS 104 - Building Construction (5)

Building construction this course emphasizes the impact that an understanding of the principles of building construction has on firefighting strategy.

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire’s area of origin
Explain elements of fire cause determination

APPFS 105 - Fire Protection Code/Inspection (5)

Fire protection/specialties the course educates students about the principles and techniques of fire prevention and life-safety inspection and code compliance.

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

APPFS 203 - Hazardous Materials On-Scene Incident Commander (2)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

APPFS 240 - Fire Instructor I (3)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

APPFS 241 - Incident Safety Officer (2)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

APPFS 242 - Fire Officer I (5)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

APPFS 243 - Fire Officer II (5)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

APPFS 255 - Fire Instructor II (3)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

FIREA-Fire Fighter Apprenticeship WSFF

FIREA 113 - Firefighter I (22)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

FIREA 141 - Firefighter II (5)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

FIREA 171 - Hazardous Materials Responder Operations Level (2)

Distribution: Career Training.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

ARWC-Architectural WoodworkingCabinet Making Technology

ARWC 101 - Introduction to Cabinetmaking (3)

This course is an introduction to the basic fundamentals of the cabinetmaking trade including sources and products of cabinetmaking and different occupational opportunities

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
complete entry level project while collaborating with a diverse peer group
Define terminology basic to the trade
Differentiate between cabinetmaking and architectural woodworking areas

ARWC 102 - Safety Principles (4)

This course is an introduction to the required safety and shop rules to be applied in the lab as well as the OSHA and WISHA rules and regulations that help maintain a safe and productive work environment

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Follow established safety rules
Follow safety checklist guidelines

ARWC 103 - Cabinetry Blueprints/ Plans (4)

An introduction to the fundamental skills of show drawings and detail plans, students read and interpret plans including material and cabinet take-offs. Basic sketching is also introduced

Distribution: Career Training. Offered: Winter.

Outcomes
Draw detailed shop drawings
Interpret detailed shop drawings
Make sketches from customers' expectations
Observe, listen and respond to a diverse group of customers wants /needs when designing a project.

ARWC 104 - Materials (2)

This course is an introduction to the materials used in the cabinetmaking trade including both natural-made and man-made materials: MDF, particle board, laminates, veneers, solid surfaces, and sustainable sourced woods

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Determine the proper use of different materials
Identify various wood species
Select the right grade for the project

ARWC 105 - Machine Tools I (4)

This course is an introduction to the proper use, maintenance, and application of basic machines used for the building of cabinets and woodworking projects. Basic machines may include the jointer, planer; radial arm saw, wide belt sander, table saw, vertical panel saw, line boring machine, motorized miter saw, and drill presses

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Adjust, maintain and use machines to WCA skill standards
WCA pre-operation checklist is a prerequisite for any machine operation

ARWC 106 - Machine Tools II (4)

This course is a continuation of the concepts introduced in ARWC 105; students demonstrate the proper use of maintenance and the application of complex machine tools used for the building of cabinets and woodworking projects. Advanced machines may include edge banders, sliding table/table saw, spindle shapers, panel raising attachment, panel router, Euro hinge machines similar to Blum Mini press, and the hollow chisel mortise

Distribution: Career Training. Offered: Spring.

Outcomes
pass level 2 WCA skills standards for all machines setup, maintenance and operations
WCA pre-operation checklist is a prerequisite for any machine operation

ARWC 107 - Machine Tools / CNC (3)

This course is an introduction to the proper use, maintenance, and application of CNC machining used for the cutting/milling of cabinets, woodworking parts, templates, and projects. The use of basic layouts on the computer and software used for this application is emphasized

Distribution: Career Training. Offered: Spring.

Outcomes
Fasten parts for CNC machining per WCA standards
Lay out parts using computer drawing program
Run program to completion with +or- 1/64 accuracy on finished part

ARWC 108 - Portable Power Tools (3)

This course is an introduction to the proper use, maintenance, and application of portable power tools, such as common tool use and care of routers and bits, the different types of routers and their application, biscuit cutter, pocket hole jigs, drills and drivers, various joint-making tools, and set-up

Distribution: Career Training. Offered: Winter.

Outcomes
Apply proper safety standards for tools used
Pass WCA skill standards for tools covered
Select the proper tool for the operation performed

ARWC 109 - Hand Tools (3)

This course is an introduction to the proper use, maintenance, and application of hand tools used for the cutting/milling, assembly, and installation of cabinets. , woodworking parts, templates, and projects. Common hands tools include the block plane; measuring and marking tools; and cutting tools such as dovetail saws, back saws, and Japanese saws

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Follow tool manufacturers' safety rules and guidelines
Pass WCA level 2 skills standards
Select, maintain and properly use hand tools to WCA standards

ARWC 110 - Basic Cabinet Joinery (4)

Students demonstrate the proper use and application of joints used in the assembly and production of cabinets. Emphasis is on function, strength, ease of machining, and basic uses of various joints. Also introduced is the application and suitability to different materials and production settings

Distribution: Career Training. Offered: Winter.

Outcomes
Complete level 2 WCA skills standards
Cut, machine to WCA skills standards
Select appropriate joint for various applications

ARWC 111 - Tool Maintenance/Sharpening (3)

This course is an introduction to the maintenance and sharpening of tools used in the shop. Routine maintenance will be covered as well as some minor tool repair and adjustments. Students use assigned/instructor approved projects to replace knives, adjust cutting performance, and maintain machines

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Calibrate tools for accurate work
Inspect, clean, adjust and lubricate equipment for maximum production
Maintain stationary power equipment

ARWC 112 - Cabinetmaking / Face Frame Construction I (4)

In this course students cut, assemble, and complete traditional face frame cabinets. In addition, the design, layout, and proper material use are introduced, as well as carcass assembly, face frames, door and drawer construction

Distribution: Career Training. Offered: Winter.

Outcomes
Identify types of case construction
List components of a typical case
Recognize assembly steps used in case construction
Select materials used in case construction

ARWC 113 - Cabinetmaking / Face Frame Construction II (4)

This course is a continuation of the concepts introduced in ARWC 112; students cut, assemble, and complete traditional face frame cabinets. Design, layout, and proper material use are introduced as well as carcass assembly, face frames and door and drawer construction. Students are assigned instructor- approved projects to develop more advanced knowledge and skills

Distribution: Career Training. Offered: Spring.

Outcomes
Identify types of case construction
List components of a typical case
Recognize assembly steps used in case construction
Select materials used in case construction

ARWC 114 - Cabinetmaking / 32mm System (3)

Students acquire knowledge and skills in the use and application of the 32mm cabinet system. This includes the construction methods, materials, hardware, and assembly of frameless cabinets

Distribution: Career Training. Offered: Summer.

Outcomes
Identify types of case construction using 32mm system
List components of a typical 32mm case
Recognize assembly steps used in 32mm case construction
Select materials used in 32mm case construction

ARWC 115 - Finishing Methods I (3)

Students are introduced to the use and application of finishes used in a shop setting including a variety of techniques: wipe-on, spray, and brushing

Distribution: Career Training. Offered: Summer.

Outcomes
Correct surface defects such as dents, cracks and voids
Perform the function Degloss/sand between coats
Select and apply penetrating or built-up top coatings
Select methods for applying coating materials

ARWC 116 - Drawers and Doors (2)

Students assemble doors and drawers and design and manufacture different door/drawer styles to assigned/personal projects.

Distribution: Career Training. Offered: Spring.

Outcomes
Identify the appropriate drawer slides for mounting different drawers
Identify the appropriate hinge types for mounting different doors
List the steps for making a 5 piece drawer
List the steps for making a stile and rail door

ARWC 117 - Laminates / Countertops /Solid Surface (3)

Students are introduced to the fabrication and assembly methods of various countertop materials including plastic laminates and solid surface materials

Distribution: Career Training. Offered: Summer.

Outcomes
Apply adhesive for solid surfaces
Describe steps taken to prepare the surface for laminates
Identify the difference between countertop surface materials
Identity tools to cut laminates
Select and cut solid surface materials
Select appropriate adhesives for applying plastic laminates

ARWC 118 - Occupational Math (3)

This course is an introduction to mathematical computations as they related to the architectural woodworking/cabinetry industry. Applied skills include material estimation and board, square, and linear footage calculations

Distribution: Career Training. Offered: Winter.

Outcomes
Apply math skills identified in manual
Solve basic industry math problems (BD. FT, SQ. FT, Lineal Footage, computations, read tape measures, add, subtract fractions, estimate material costs etc.)
Use industry math skills to compute shop job cost estimate and complete the forms

ARWC 119 - Jigs and Fixtures (2)

This course is an introduction to the use of jigs, templates, and fixture for doing machining processes when more than one part is required to be identical or parts need to be held for machining. Skills taught include material selection, measurements, proper tooling, and ease of use. Work is on shop projects and simulated mock-ups

Distribution: Career Training. Offered: Spring.

Outcomes
Describe several applications of jigs and fixtures
Make jigs to fit various router bit types (Template guide, pattern bit and flush trim)
Select proper materials for constructing a jig to cut hinge pockets

ARWC 120 - Cabinetmaking / Commercial Construction (3)

Students assemble commercial casework including assembly methods, construction standards, and materials

Distribution: Career Training. Offered: Summer.

Outcomes
Describe the materials used and why
Design, construct, and install to industry standards
Discuss commercial cabinet production methods

ARWC 201 - Wood Bending/Lamination Techniques (3)

Students apply wood bending/laminating techniques including vacuum bagging and lamination bending. Types of forms, construction of forms, adhesives, and best materials for bending are included

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Construct a laminating jig using appropriate materials
Follow the procedures for lamination bending
Identify dry methods of bending wood
Identify proper selection of adhesives and materials for lamination bending
Identify wet methods of bending wood

ARWC 202 - Architectural Millwork (3)

Students practice architectural millwork fabrication and design methods using projects and mockups. Molding selection, machining, material selection, and cutting are also included

Distribution: Career Training. Offered: Fall.

Outcomes
Demonstrate how to install and use moldings/architectural elements
Demonstrate the proper selection of materials
Perform setup and machine molding on molder/planer

ARWC 203 - Beginning Furniture Projects (5)

In this course furniture design, styles, and assembly methods are taught

Distribution: Career Training. Offered: Fall.

Outcomes
Build and assemble furniture for use
Know the proper selection of materials
Learn furniture design
Student will be able to use various research media

ARWC 204 - Cabinet Installation - Residential / Commercial (4)

Students install residential and commercial cabinets and fixtures. Layout, leveling, and fastening methods are also taught

Distribution: Career Training. Offered: Summer.

Outcomes
Develop a plan for installing cabinets on-site
Discuss different install/fastening methods for residential and commercial installs
Final fit and alignment of all doors and drawer fronts
Gather tools and materials for installation
Install trim and moldings, fill nail holes to finish off cabinet install

ARWC 205 - Advanced Joinery (4)

The selection and proper use of tools and materials in the creation of advanced joinery are emphasized

Distribution: Career Training. Offered: Fall.

Outcomes
Apply the use of joints that are not suitable for production settings
Cut and assemble joints using hidden fasteners
Determine the proper fit of joints using a friction fit
Select appropriate joints for advanced projects

ARWC 206 - Cabinetmaking Computer Technology (4)

This course is an introduction to the use of different industry software for design, layout, and manufacture of cabinets

Distribution: Career Training. Offered: Fall.

Outcomes
Create basic kitchen layouts using work triangle
Describe how to generate a cutting list on the computer
Identify the effects computers have on producing working drawings and cabinetmaking in general
Produce computer generated shop drawings

ARWC 207 - Veneering Technology (2)

In this course students use a variety of methods of applying, fitting, and trimming veneers

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Describe the installation methods for pressing veneer onto panel stock
List the various methods of cutting veneer
Match veneer sheets into pleasing/matching grain patterns

ARWC 208 - Employment Preparation (3)

Students practice job search techniques, resume writing, and receive assistance in developing career goals and educational plans

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Explain the alternatives for career advancement
Identify what it takes to succeed at a job
Recognize employment opportunities in the cabinetmaking field

ARWC 209 - Advanced Projects (5)

With instructor approval, students select and complete an advanced project

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate skills acquired in program
Select, plan, cut, assemble an advanced project

ARWC 291 - Practical Applications

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Apply practical theory and technical skills learned through classroom training to analyze and resolve problems within practical applications.
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

ARWC 292 - Independent Project I (5)

The Independent Project I course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment
Behave ethically and in a culturally relevant manner as a professional in the lab/classroom environment
Connect theory and technical skills learned through classroom training to analyze and resolve problems within Independent Project I

ARWC 293 - Independent Project II (5)

The Independent Project II course offers students further opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training.

Outcomes
Apply increasingly effective oral, written, and analytical communication appropriate to role and lab/classroom environment
Connect theory and technical skills learned through classroom training to analyze and resolve problems within Independent Project II
Continue to behave ethically and in a culturally relevant manner as a professional in the lab/classroom environment

ARWC 294 - Independent Project III (5)

The independent project III course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project III
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

ARWC 296 - Work-Based Learning Experience I (1-13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

ARWC 297 - Work-Based Learning Experience II (1-13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

AUTOB-Auto Body Rebuilding and Refinishing

AUTOB 101 - Auto Body Math Applications (3)

This course is an introduction to mathematical theory and its application to the automotive refinishing industry. Topics include an overview of general mathematical concepts and how they are successfully utilized in practical situations

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Compare US and metric measuring systems
Explain the many types of measurements needed in collision repair
Identify and use basic measuring tools common to auto body repair
Make accurate linear, angle, pressure, volume and other measurements
Measure paint using paint mixing sticks
Use conversion charts

AUTOB 102 - Safety Principles (3)

This course is an introduction to the safety practices and procedures common to the automotive refinishing industry

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Describe how to prevent shop accidents
Summarize methods of handling hazardous waste found in the body shop
Summarize the importance of wearing a respirator
Explain Right-to-Know Laws
Fit and adjust a respirator
List the general rules regarding personal safety while working
List the types of accidents that can occur in an auto shop
List the types of safety gear needed in the shop
Observe, listen and respond appropriately
Review precautions for using hand tools and power equipment
Summarize major shop areas and safety rules that apply to each

AUTOB 103 - Materials Identification (3)

Students are introduced to the various types of automotive materials, finishes and the equipment used in their application. Emphasis is placed on identification of a variety of repair and refinishing materials, types of equipment, and proper safety precautions

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Analyze information, recognizing viable solutions
Select the right repair material for a particular job
Summarize the use of chemical fasteners
Summarize when to use different kinds of filler
Compare the use of similar shop materials
Define the importance of using a complete paint system
Explain bolt and nut torque values
Explain the basic purpose of primers, sealers, surfaces, and other refinish materials
Explain when specific fasteners are used in body construction
Identify and select the right type of primer and paint
Identify the various fasteners used
Remove and install bolts and nuts properly

AUTOB 104 - Minor Body Repair Methods (5)

Students identify materials used in minor body repair and how to use them to fill/smooth depressed areas in sheet metal. The removal and installation of bolt-on panels are also included

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
Choose the correct body filler for a particular repair job
List common mistakes made when using filler and spot putty
List the different types of body fillers and glazes
List the steps for shrinking metal
Properly repair rust out damage
Summarize the deformation effects of impacts on steel
Summarize the procedures for paintless dent removal
Use a hammer an dolly to straighten metal
Use recommended methods for shaping filler
Correctly apply filler
Describe different types of metals used in vehicle construction
Describe how to use special sanding aids
Explain how to bump dents with spoons
Explain how to repair scratches, nicks, dings, and surface rust with body filler and glazing putty
Explain the strength ratings of metals
Identify the correct way to mix filler and hardener

AUTOB 105 - Major Panel Replacement (5)

Students apply the basic theory of major panel replacement and alignment/replacement methods, including welding. They are also introduced to automobile body construction types and their common mechanical components: energy absorbers, suspension and steering systems and CV joints

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Spring.

Outcomes
Describe how factory spot welds are separated
Describe how to install foam panel fillers
Explain how new body panels should be positioned on a vehicle
List the parts and panels of a vehicle considered to be structural
List the steps for welding new body panels in place
List the steps necessary for replacing a body panel along factory seams
Section rails, rocker panels, pillars, floor pans, and trunk floors
Use the information in a vehicle dimension manual to properly replace welded body panels

AUTOB 106 - Alignment - Sheet Metal (5)

This course includes practical applications in the adjustment/alignment of bolt-on sheet metal doors, hoods, fenders, and trunk lids

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Spring.

Outcomes
List the various methods for adjusting mechanically fastened panels
Perform hood-to-hinge, hood height, and hood latch adjustments
Remove and install fenders
Remove, install and adjust deck lids

AUTOB 107 - Alignment - Bumpers (3)

Students align a variety of bumpers including impact-absorbing, fixed mounted and metal reinforced

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
List the precautions to follow when servicing bumper energy absorbers
Remove, install and adjust bumpers
Replace grilles and other bolt on body parts

AUTOB 108 - Alignment - Head Lamps (1)

Students will align various types of headlamps in automobiles

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
Align various types of headlamps in automobiles

AUTOB 109 - Trim and Accessories (3)

Students will replace trim molding, hardware, locks and latches and repair/replace window adjustment mechanisms and restraint devices

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
Service trim pieces on the outside of body panels

AUTOB 110 - Window Mechanisms (4)

Students install mechanical and power window mechanisms

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
Describe how to service both manual and power window regulators
Remove, replace and adjust door assemblies

AUTOB 111 - Introduction to Surface Preparation (2)

Basic principles of interior and exterior surface preparation are introduced. Students analyze the components of primers, undercoats, and topcoats

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Winter, Spring, Summer.

Outcomes
Describe three methods of removing a deteriorated paint film
Determine when to apply a primer, a primer-sealer, a primer-surface, or glazing putty
Determine whether an existing finish is defect free and adheres soundly to a vehicle
Prepare existing paint films and bare metal substrates for refinishing
Prepare plastic parts for refinishing
Recognize the need for both quantitative and qualitative information
Select the correct abrasive and sanding techniques for specific final sanding operations

AUTOB 112 - Surface Preparation Applications (5)

This course introduces students to methods of surface preparation for automotive refinishing. Topics include sanding techniques, metal treatment, selection and use of undercoats, and proper masking procedures

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Winter, Spring, Summer.

Outcomes
Choose the correct anticorrosive application equipment for specific applications
Define corrosion and describe the common factors involved in rust formation
Describe the anticorrosive materials used to prevent and retard rust formation
List the four types of seam sealers and explain where each should be used
Mask a car, panel or spot repair for finishing
Outline the correct corrosion treatment procedures for each of the four general corrosion treatment areas

AUTOB 113 - Advanced Surface Preparations (5)

A continuation of the concepts introduced in AUTOB 111 and 112, students continue to apply advanced surface preparation techniques to restore cars to factory standards after collision damage

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103, AUTOB112. Offered: Fall, Spring.

Outcomes
complete surface preparation to restore care to OEM specifications

AUTOB 201 - Topcoat Systems (5)

Students are introduced to the basic principles of topcoat systems with emphasis on the types of automotive topcoat systems and their application procedures

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Spring.

Outcomes
Compare OEM or original factory paint jobs with those done in a body shop
Summarize the methods for applying topcoats
Use a spray gun properly
Describe the different kinds of spray gun coats
Describe the role of solvents
Determine the type of paint on a car and whether the car has been repainted
Explain the advantages and disadvantages of basecoat/clear coat finishes
Explain when primers should be used before painting
Name the types of topcoats
Select and mix paint solvents
Summarize common spray gun handling problems

AUTOB 202 - Topcoat Systems Applications (5)

A continuation of the concepts introduced in AUTOB 201, students apply a variety of automotive topcoats including single-stage, basecoat/clearcoat, and tri-coat finishes. Buffing, compounding, and detailing of newly painted vehicles for delivery is also presented

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103, WBAS101. Offered: Fall, Spring.

Outcomes
Define terms relating to color
Properly complete spot repairs, panel repairs, and an overall paint job
Summarize the repair procedures for multistage finishes
Describe color theory and how it relates to matching paint colors
Describe the methods of doing custom paint work
Describe the paint finishing systems applicable to plastic parts
Describe the use of a computerized color matching system
Explain how to tint solid and metallic colors
Make spray-out and let-down test panels
Professional apply single-stage finishes, as well as basecoat/clear coat systems

AUTOB 203 - Shop Welding (5)

This course provides instruction in automotive metal inert gas (MIG) and oxyacetylene welding with emphasis on safety, set-up and operation of welding equipment. Students successfully join automotive sheet metal using the MIG process

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103, WBAS101. Offered: Fall, Spring.

Outcomes
Describe differences between MIG electrode wires
List safety procedures important in each welding operation
Name the six basic welding techniques employed with MIG equipment
Describe plasma arc cutting of body panels
Determine where and how to use resistance spot welding
Explain general brazing and soldering techniques
Explain how to use a MIG welding machine
Explain plasma cutting techniques
Formulate reasoned solutions and interpret them to others
Identify oxyacetylene welding equipment and techniques
Identify the three classes of welding

AUTOB 204 - Unibody Alignment (5)

Students implement the basic theory and application of major unibody and frame repair. Topics include methods of inspection, types of measuring equipment, and identifying types of structural damage

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Spring.

Outcomes
Analyze information, critically recognizing viable solutions
Locate the major parts of a perimeter frame
Locate the major parts of a unibody frame
Properly plan and execute collision repair procedures
Summarize how different types of unibody/frame straightening equipment are set up and used
Summarize safety considerations to follow when using equipment
Summarize the various types of frames commonly used on cars, trucks, vans and SUVs
Compare a conventional full frame with modern hydro formed frames
Compare and contrast body-over-frame and unibody construction
Describe the basic straightening and aligning techniques
Determine pull directions by analyzing damage
Explain past and present designsof motor vehicles
Explain why it might be necessary to pull damaged parts before their removal
Identify signs of stress/deformation on a unibody vehicle and make repairs
Identify the major structural components, sections, and assemblies of a motor vehicle

AUTOB 205 - Body Over Frame Alignment (4)

Students measure, align, and repair a unibody and body over frame vehicle

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Spring.

Outcomes
Analyze damage by measuring body dimensions
Locate and measure key points using a tape measure, tram bar, and self-centering gauges, when given a damaged vehicle and a body specification manual
Analyze impact damage to mechanical parts of the vehicle
Describe how to visually determine the extent of impact damage
Diagnose various types of body damage, including twist, mash, sag, and side-sway
Discuss the use of tram bars, self-centering gauges, and strut tower gauges
Explain how impact forces are transmitted through both full frame and unibody construction
Explain the importance of the datum plane and centerline concepts
Interpret body dimension information and locate key reference points on a vehicle using body dimension manuals
List the various types and variations of body measuring tools

AUTOB 206 - Glass Installation (4)

This course is an introduction to glass installation methods with emphasis on the removal and replacement of structural glass, non-structural glass, and auto trim. Cleanup of vehicle interior after breakage is also included

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
Compare different methods used to secure windshield glass
Describe windshield glass replacement procedures
Properly replace rearview mirror glass and heating elements
Summarize door glass replacement and adjustment

AUTOB 207 - Introduction to Plastic Repair (2)

Students identify the various types of plastics, their characteristics and locations, and which procedures to follow while repairing or refinishing the various types of plastics

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Fall, Spring.

Outcomes
Describe the proper plastics welding repair sequence
Explain how fiberglass is used in adhesives to reinforce the damaged surface
Explain the keys to good plastics welding
Explain the safety precautions used when working with fiberglass
Identify and explain the difference between the two major types of plastics used
Identify unknown plastics

AUTOB 208 - Plastic Repair Methods (5)

This course is a continuation of the concepts introduced in AUTOB 207. Students repair or refinish various plastic surfaces

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103, AUTOB207. Offered: Winter, Summer.

Outcomes
Make SMC and RRIM repairs
Repair gouges, tears, and punctures in plastics by means of a chemical bonding process
Repair minor cuts cracks in plastics using adhesives

AUTOB 210 - Introduction to Estimating (4)

Students estimate collision damage, auto body repair, and finishing costs. Traditional and computer-assisted methods used for determining cost involved in labor, parts, and materials are emphasized

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
Calculate material costs based on a refinishing materials list
Use computer-based estimating programs
Describe the benefits of using a digital camera, handheld computer, personal computers and estimating software in preparing estimates
Describe the method of determining the reparability of a damaged vehicle
Determine whether damaged parts should be repaired or replaced
Explain the differences between flat-rate labor and overlap labor time when estimating
Explain the general purpose of damage estimates
Manually and electronically prepare an estimate
Outline the sequence for evaluating vehicle damage
Recognize that accurate and complete information is the basis for effective decision-making

AUTOB 211 - Special Projects (4)

This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas

Distribution: Career Training. Prerequisite: AUTOB102, AUTOB103. Offered: Winter, Summer.

Outcomes
Compare hybrid vehicles and their unique drive systems
Identify electric and alternative fuel vehicles and compare their designs
Identify the major parts of hybrid and electric vehicles
Inspect drive systems and components unique to hybrid and electric vehicles
Perform final checks required for hybrid and electric vehicles before delivery to the customer.
Safely remove and replace high-voltage batteries and other components necessary to perform Collison repairs to hybrid and electric vehicles
Understand the unique challenges and safety precautions while performing repairs to hybrid and electric vehicles

AUTOB 291 - Practical Applications (18)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Apply practical theory and technical skills learned through classroom training to analyze and resolve problems within practical applications.
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

AUTOB 292 - Independent Project I (5)

The independent project I course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project I
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

AUTOB 293 - Independent Project II (5)

The independent project II course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project II
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

AUTOB 294 - Independent Project III (5)

The independent project III course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project III
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

AUTOB 296 - Work-Based Learning Experience I (1-13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

AUTOB 297 - Work-Based Learning Experience-Seminar (2)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Define knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Demonstrate effective oral, written, and analytical communication appropriate to role and work environment.

AUTOB 298 - Work-Based Learning Experience II (1-13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

AUTOM-Automotive Technology

AUTOM 101 - Basic Engines (4)

This course is an introduction to internal combustion engine theory, configuration operation and diagnosis

Distribution: Career Training. Offered: Fall.

Outcomes
Define engine noises and vibrations; determine necessary action
Discuss system configuration and operation
Explain basic internal combustion engine theory
Inspect engine assembly for fuel, oil, coolant and other leaks; determine necessary action

AUTOM 102 - Engine Systems (4)

This course is an introduction to the operation and diagnosis of engine subassemblies such as valve trains, timing components and short blocks

Distribution: Career Training. Offered: Fall.

Outcomes
Define valve trains, timing components and short blocks
Explain engine subassemblies
Perform inspection of engine systems

AUTOM 103 - Intro to Basic Electrical Theory (4)

This course is an introduction to electrical theory including Ohm's Law, Series and Parallel Circuits and measuring devices

Distribution: Career Training. Offered: Fall.

Outcomes
Define basic electrical theory
Discuss electrical theory as related to automotive engines and systems
Inspect and measure cylinder walls/sleeves for damage, wear, and ridges; determine necessary action
Research applicable vehicle and service information, such as electrical/electronic system operation, vehicle service history, service precautions, and technical service bulletins.

AUTOM 105 - Engines/Electrical Applications (3)

This course is an introduction to automotive electrical applications such as charging systems and starting systems and problem diagnosis

Distribution: Career Training. Offered: Fall.

Outcomes
Define charging systems
Explain starting systems and problems diagnosis
Identify components of basic automotive electrical systems

AUTOM 106 - Shop Safety and Meter Certification (1)

This course is a introduction to standard automotive shop safety procedures including handling and disposal of hazardous materials, the proper use of protective gear and equipment, and the operation of specialized automotive shop equipment. They also receive training in the use of a diagnostic meter for automotive electrical applications commonly used in the automotive industry.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
List the various methods for adjusting mechanically fastened panels
Perform hood-to-hinge, hood height, and hood latch adjustments
Remove and install fenders

AUTOM 121 - Basic Engine Performance (5)

This course is an introduction to engine performance, diagnosis, and computer applications

Distribution: Career Training. Offered: Winter.

Outcomes
Define engine performance diagnosis
Discuss basic engine performance
Explain computer applications to engine diagnosis
Identify and interpret engine concern; determine necessary action
Identify respectful team member behaviors in a diverse classroom/lab environment
Research applicable vehicle and service information, such as electrical/electronic system operation, vehicle service history, service precautions, and technical service bulletins.

AUTOM 122 - Basic Ignition Systems (5)

This course is an introduction to electronic and computer operated ignition systems including primary controls and secondary high voltage.

Distribution: Career Training. Offered: Winter.

Outcomes
Define secondary high voltage
Discuss primary controls
Explain electronic and computer operated ignition systems
Inspect and test ignition primary and secondary circuit wiring and solid state components; test ignition coil(s); perform necessary action

AUTOM 123 - Intro to Fuel Systems (4)

This course is an introduction to electrical and mechanical fuel delivery systems and test equipment.

Distribution: Career Training. Offered: Winter.

Outcomes
Demonstrate respectful team member skills, in a diverse classroom/lab environment
Discuss electrical fuel delivery systems
Explain the differences of mechanical fuel system delivery
Identify major components to fuel systems

AUTOM 124 - Intro to Emission Systems (2)

This course is an introduction to EGR, evaporative and exhaust emission systems, their requirements and operation.

Distribution: Career Training. Offered: Fall.

Outcomes
Discuss diagnosis of emission systems
Explain EGR systems
Identify evaporative and exhaust emission systems requirements and operations

AUTOM 125 - Intro to Fuel Injection (2)

This course is an introduction to electronic fuel injection, controls, and test equipment.

Distribution: Career Training. Offered: Winter.

Outcomes
Explain the process and theory of fuel injection
Identify the component parts and related systems to vehicle fuel injection
Perform fuel injection tests

AUTOM 130 - Intro to Lighting/Instrument Systems (4)

This course is an introduction to lighting types, switches and controls. Instrumentation theory and applications are examined.

Distribution: Career Training. Offered: Spring.

Outcomes
Discuss lighting systems in relation to types, switches and controls
Explain instrumentation theory and applications
Perform fuel injection tests
Practice basic lighting diagnosis

AUTOM 131 - Intro to Clutches/Manual Trans (4)

This course is an introduction to gear trains and syncromesh transmission operation.

Distribution: Career Training. Offered: Spring.

Outcomes
Diagnose clutch noise, binding, slipping, pulsation, and chatter; determine necessary action
Discuss the major gear trains and synchromesh operational systems
Identify and explain the component clutch system

AUTOM 132 - Basic Auto Transmission/Transaxle (4)

This course is an introduction to automatic transmission principles, hydraulics and planetary gear sets.

Distribution: Career Training. Offered: Spring.

Outcomes
Identify and interpret transmission/transaxle concern; differentiate between engine performance and transmission/transaxle concerns; determine necessary action
Locate and interpret vehicle and major component identification numbers to assist in automatic transmission repair concerns
Research applicable vehicle and service information, such as transmission/transaxle system operation, fluid type, vehicle service history, service precautions, and technical service bulletins

AUTOM 133 - Intro to Four and All Wheel Drive (4)

This course is an introduction to four wheel drive, transfer cases and differentials.

Distribution: Career Training. Offered: Spring.

Outcomes
Discuss and remove and reinstall transfer cases
Explain differentials in relation to four and all-wheel drive vehicles
Identify the component parts to four and all wheel drive vehicles

AUTOM 140 - Wheel Alignment and Steering System (4)

This course is an introduction to wheel alignment, rack and pinion steering, and suspension systems.

Distribution: Career Training. Offered: Summer.

Outcomes
Identify and interpret suspension and steering system concerns; determine appropriate action
Locate and interpret vehicle and major component identification numbers for suspension systems
Research applicable vehicle and service information, such as suspension and steering system operation, vehicle service history, service precautions, and technical service bulletins

AUTOM 141 - Brake Systems (4)

This course is an introduction to hydraulics, system splitting and power brakes.

Distribution: Career Training. Offered: Summer.

Outcomes
Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause and correction
Identify and interpret brake system concerns, determine necessary action
Locate and interpret vehicle and major component identification numbers
Research applicable vehicle and service information, such as brake system operation, vehicle service history, service precautions, and technical service bulletins

AUTOM 142 - Drum and Disc Braking Systems (4)

This is an introduction course to brake types and application including anti-lock

Distribution: Career Training. Offered: Summer.

Outcomes
Discuss component parts of drum and disc brake systems
Identify and interpret brake system concerns, determine necessary action
Research applicable vehicle and service information, such as brake system operation, vehicle service history, service precautions, and technical service bulletins

AUTOM 143 - Basic Heating/ Air Conditioning (4)

This course is an introduction to automatic and manual mobile HVAC systems. Principles of heat transfer and refrigerant are examined.

Distribution: Career Training. Offered: Summer.

Outcomes
Identify and interpret heating and air conditioning concerns; determine necessary actions
Performance test A/C systems; identify A/C system malfunctions
Research applicable vehicle and service information, such as hearing and air conditioning system operation, vehicle service history, service precautions, and technical service bulletins

AUTOM 201 - Advanced Engine Repair (5)

In this advanced segment, detailed engine diagnosis and repair is performed. Crankshaft measuring, plastic gauge and piston rings are all examined.

Distribution: Career Training. Prerequisite: AUTOM 101 with a minimum grade of 1.4. Offered: Fall.

Outcomes
Define crankshaft measuring
Disassemble engine block; clean prepare components for inspection and reassembly
Examine plastic gauge and piston rings
Explain advanced diagnostic techniques for engine repair

AUTOM 202 - Advanced Engine Assembly (3)

In this advanced course, engine subassemblies, cylinder heads, short blocks and timing components are repaired to current standards.

Distribution: Career Training. Prerequisite: AUTOM 102 with a minimum grade of 1.4. Offered: Fall.

Outcomes
Disassemble engine block; clean prepare components for inspection and reassembly
Inspect and measure cylinder walls/sleeves for damage, wear and ridges; determine necessary action
Inspect engine block for visible cracks, passage condition, core and gallery plug condition, and surface warpage; determine necessary action

AUTOM 203 - Automotive Electrical Systems (4)

In this advanced course, diagnostic testers and electrical troubleshooting are examined.

Distribution: Career Training. Prerequisite: AUTOM 103 with a minimum grade of 1.4. Offered: Fall.

Outcomes
Check electrical circuits with a test light; determine necessary action
Demonstrate the proper use of a digital multimeter (DMM) during diagnosis of electrical circuit problems, including: source voltage, voltage drop, current flow and resistance
Diagnose electrical/electronic integrity of series, parallel and series-parallel circuits using principles of electricity (Ohm's Law)
Use wiring diagrams during diagnosis of electrical circuit problems

AUTOM 204 - Battery/Starters and Charging Systems (4)

In this advanced course, battery, starting, and charging systems are diagnosed and repaired.

Distribution: Career Training. Prerequisite: AUTOM 105 with a minimum grade of 1.4. Offered: Fall.

Outcomes
Explain battery starting and charging systems
Perform battery capacity test; confirm proper battery capacity for vehicle application; determine necessary action
Perform battery state-of-charge test; determine necessary action

AUTOM 220 - Ignition Systems Service (4)

In this advanced course, computer and electronic ignition systems are diagnosed and repaired.

Distribution: Career Training. Prerequisite: AUTOM 122 with a minimum grade of 1.4. Offered: Winter.

Outcomes
Diagnose ignition system related problems such as no starting, hard starting, engine misfire, poor drivability, spark knock, power loss, poor mileage, and emissions concerns; determine necessary action
Inspect and test ignition primary and secondary circuit wiring and solid state components; test ignition coils; perform necessary action
Inspect, test, and/or replace ignition control module, powertrain/engine control module, reprogram as necessary

AUTOM 221 - Fuel System Service (4)

In this advanced course, pressurized fuel delivery systems are diagnosed and repaired.

Distribution: Career Training. Prerequisite: AUTOM 123 with a minimum grade of 1.4. Offered: Winter.

Outcomes
Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause and correction
Define pressurized fuel delivery systems
Identify diagnosis and repair techniques to fuel delivery systems
Perform as a respectful team member, in a diverse classroom and/or workplace

AUTOM 222 - Emissions Systems Service (3)

In this advanced course, emissions are measured using modern test equipment and control systems adjusted and repaired.

Distribution: Career Training. Prerequisite: AUTOM 124 with a minimum grade of 1.4. Offered: Winter.

Outcomes
Diagnose hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling and emissions problems; determine necessary action
Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume; perform necessary action
Inspect the integrity of the exhaust manifold, exhaust pipes, mufflers, catalytic converters, resonators, tail pipes, and heat shields; perform necessary actions
Perform systems testing of emissions systems through the use of modern test equipment

AUTOM 223 - Fuel Injection Service (3)

In this advanced course, fuel injection is examined, adjusted and repaired using modern test equipment and diagnostic procedures.

Distribution: Career Training. Prerequisite: AUTOM 125 with a minimum grade of 1.4. Offered: Winter.

Outcomes
Discuss fuel injection system diagnostic procedures
Explain fuel injection systems
Identify test equipment appropriate for diagnostic procedures

AUTOM 230 - Lighting and Instrument Service (3)

In this advanced course, lights, wiring and instruments are examined, adjusted and repaired using modern test equipment and diagnostic procedures.

Distribution: Career Training. Prerequisite: AUTOM 130 with a minimum grade of 1.4. Offered: Spring.

Outcomes
Diagnose the cause of brighter than normal, intermittent, dim or no light operation; determine necessary action
Identify system voltage and safety precautions associated with high intensity discharge headlights
Inspect and diagnose incorrect turn signal or hazard light operation; perform necessary action
Inspect, replace and aim headlights and bulbs

AUTOM 231 - Clutches and Manual Transmission Service (5)

In this advanced course, clutches and transmissions are examined and repaired using modern repair procedures.

Distribution: Career Training. Prerequisite: AUTOM 131 with a minimum grade of 1.4. Offered: Spring.

Outcomes
Diagnose clutch and manual transmission problems
Explain noise, binding, slippage, pulsation and chatter; determine necessary action
Inspect and replace clutch pressure plate assembly, clutch disc, release bearing and linkage, and pilot bearing/bushing
Inspect engine block, core plugs, rear main engine oil seal, clutch housing, transmission/transaxle case mating surfaces and alignment dowels; determine necessary action

AUTOM 232 - Automatic Transmission/Transaxle Service (4)

In this advanced course, automatic transmissions and transaxles are examined and repaired using modern repair procedures.

Distribution: Career Training. Prerequisite: AUTOM 132 with a minimum grade of 1.4. Offered: Spring.

Outcomes
Disassemble, clean and inspect transmission/transaxle
Inspect, leak test, and flush or replace transmission/transaxle oil cooler, lines and fittings
Inspect, measure, clean and replace valve body
Measure transmission/transaxle end play or preload; determine necessary action

AUTOM 233 - Four and All-Wheel Drive Service (4)

In this advanced course, multi wheel drive systems are diagnosed and repaired using modern repair procedures.

Distribution: Career Training. Prerequisite: AUTOM 133 with a minimum grade of 1.4. Offered: Spring.

Outcomes
Diagnose power steering gear binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action
Diagnose test, adjust and replace electrical/electronic components of four-wheel drive systems
Identify concerns related to variations in tire circumference and/or final drive ratios
Inspect, adjust and repair shifting controls, bushings, mounts, levers and brackets

AUTOM 240 - Advanced Wheel Alignment/Steering System Service (4)

In this advanced course, steering and suspension systems are serviced and aligned using modern alignment equipment.

Distribution: Career Training. Prerequisite: AUTOM 140 with a minimum grade of 1.4. Offered: Summer.

Outcomes
Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concern; determine necessary action
Diagnose power steering gear binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action
Diagnose steering column noises, looseness, and binding concerns; determine necessary action

AUTOM 241 - Advanced Brake Service (4)

In this advanced course, brake hydraulic systems are serviced using modern brake service equipment.

Distribution: Career Training. Prerequisite: AUTOM 141 with a minimum grade of 1.4. Offered: Summer.

Outcomes
Diagnose poor stopping, pulling or dragging concerns, caused by malfunctions in the hydraulic system; determine necessary action
Diagnose pressure concerns in the brake system using hydraulic principles
Inspect master cylinder for internal/external leaks and proper operation; determine necessary action

AUTOM 242 - Advanced Disc and Drum Brake Service (4)

In this advanced course, disc and drum brake systems are serviced and repaired using modern brake service equipment.

Distribution: Career Training. Prerequisite: AUTOM 142 with a minimum grade of 1.4. Offered: Summer.

Outcomes
Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pulsation concerns; determine necessary action
Perform maintenance removing, cleaning, inspecting and measuring brake drums
Remove caliper assembly, inspect for leaks and damage to caliper housing; determine necessary action
Remove, clean and inspect brake shoes, springs, pins, clips, lefts, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble

AUTOM 243 - Applied HVAC Service (3)

In this advanced course, heating and air conditioning systems are service and repaired using modern AC service equipment.

Distribution: Career Training. Prerequisite: AUTOM 143 with a minimum grade of 1.4. Offered: Summer.

Outcomes
Diagnose temperature control problems in the heater/ventilation system; determine necessary action
Inspect A/C heater ducts, doors, hoses, cabin filters and outlets; perform necessary action
Perform cooling system pressure tests, check coolant condition, inspect and test radiator, cap, coolant recovery tank and hoses; perform necessary action

AUTOM 296 - Work-Based Learning Experience (1-13)

This course provides a work-based learning experience with an instructor-approved employer in the automobile repair and maintenance industry. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR APP. REQ.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

BARB-Barber

BARB 101 - Barbering Fundamentals (6)

This theory-based course lays the groundwork for aspiring barbers by focusing on essential aspects of the profession. Delve into sanitation practices, tool identification, and effective communication skills. Emphasis is placed on maintaining high ethical standards and professionalism in the barbering field. Gain a comprehensive understanding of the industry's core principles, setting the stage for a successful career.

Prerequisite: N/A. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate a thorough understanding of sanitation and safety practices within a barber shop environment.
Identify and utilize barbering tools and equipment effectively, ensuring proper maintenance and hygiene.
Develop effective communication and consultation skills to understand client needs and preferences.
Uphold high ethical standards and professionalism in all aspects of the barbering profession, promoting diversity, equity, and inclusion.

BARB 102 - Barbering Application Fundamentals (6)

Practice basic haircutting with scissors and clippers, refine shaving techniques, and apply sanitation and safety procedures on mannequins. Gain practical experience with barbering tools and delve into introductory hair coloring and chemical processes. This course transforms theory into skill, preparing you for the practical nuances of the barbering profession.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Execute basic haircutting techniques using scissors and clippers on mannequins.
Demonstrate basic shaving techniques on mannequins, ensuring precision and safety.
Apply proper sanitation and safety procedures in a practical setting.
Gain hands-on experience in handling barbering tools and equipment on mannequins.
Apply introductory chemical processes on mannequins, emphasizing theoretical knowledge.

BARB 103 - Advanced Barbering Principles (10)

Master advanced haircutting techniques, including fades and texturizing, and perfect the art of designing facial hair. Explore advanced hair coloring and chemical processes, with a hands-on focus. Gain insight into business management and marketing within the barbering industry. Refine client consultation skills for intricate styles.

Prerequisite: BARB 101, BARB 102. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate competence in advanced haircutting techniques, including fade, blending, and texturizing.
Demonstrate mastery in designing and grooming facial hair, including mustaches and beards.
Apply advanced chemical processes with a focus on practical application.
Understand the basics of business management and marketing within the barbering industry.
Hone client consultation skills for diverse and intricate styles, recognizing and respecting a range of preferences and cultural considerations.
Demonstrate the basic concepts of inventory, purchasing, price setting, monetary calculations, and accounts receivable.

BARB 104 - Client Practice & Application I (11)

Students will apply advanced haircutting techniques, facial hair design, and shaving methods with precision. The course also includes hands-on experience in advanced hair coloring and chemical processes, emphasizing practical application on live models. Mastery of advanced shaving and neck outlining techniques will be demonstrated through practical sessions on live models, providing students with a comprehensive understanding of advanced barbering practices.

Prerequisite: BARB 101, BARB 102. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply advanced haircutting techniques on live models with precision and creativity.
Execute facial hair design and shaving techniques on live models.
Apply advanced hair coloring and chemical processes on live models.
Demonstrate advanced shaving and neck outlining techniques on live models.

BARB 105 - Barbering & Business Management (10)

This course applies business management skills within a barber shop context. Students develop and present a comprehensive Barber Shop Management Plan, enhance client service, and formulate retention strategies. Advanced business management tailored to the barbering industry is emphasized.

Prerequisite: BARB 103, BARB 104. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply business management skills in a barber shop environment.
Demonstrate understanding of basic business computations such as account reconciliation, budgeting, cost markups.
Develop and present a comprehensive Barber Shop Management Plan.
Provide exceptional client service and develop strategies for client retention.
Apply advanced business management skills tailored to the barbering industry.

BARB 106 - Client Practice & Application II (11)

Students will achieve competence in haircutting and styling techniques on live models, translating theoretical knowledge into real-world skills. Strategies for client service excellence and retention will be implemented in an authentic setting. The course also includes the demonstration of competence in advanced hair coloring and chemical processes on live models. Additionally, students will apply business and marketing principles in real-world scenarios, engaging with actual clients to solidify their understanding of effective management practices within the barbering industry.

Prerequisite: BARB 103, BARB 104. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Achieve competence in haircutting and styling techniques on live models.
Implement strategies for client service excellence and retention in a real-world setting.
Demonstrate competence in advanced hair coloring and chemical processes on live models.
Apply business and marketing principles in real-world scenarios with actual clients.

BARB 107 - Advanced Applications (10)

As the concluding course before graduation, this practicum is dedicated to hands-on skill refinement. Students will extensively practice haircutting, styling, facial hair design, and advanced hair coloring. With a focus on practical application, students will sharpen their abilities through continuous hands-on experience on live models, preparing them for a successful transition into the professional realm upon successful completion of Washington State Barbering exam.

Prerequisite: BARB 105, BARB 106. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Achieve mastery in haircutting and styling techniques on live models.
Specialize in facial hair design and implement advanced techniques on live models, embracing diverse styles and considering cultural nuances.

BARB 108 - Barbering License Test Preparation (11)

This course ensures comprehensive readiness for the Washington State Barber Licensing Exam. Students will thoroughly understand and articulate Washington State barbering regulations, recognizing their implications on professional practice. This course provides the necessary knowledge and practical expertise to navigate the licensing process with confidence and meet the regulatory standards set by the Washington State barbering board.

Prerequisite: BARB 105, BARB 106. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Understand and explain Washington State barbering regulations and their implications on professional practice.
Successfully simulate the licensing exam with a high level of proficiency on live models.

BARB 291 - Practical Applications (1-18)

Distribution: Career Training.

BIOL - Biology, Natural Sciences

BIOL& 160 - General Biology (5)

General Biology is intended to leave the student with an integrated view of the living world. The primary goal of the course is to provide students with exposure to and an appreciation of, basic cellular, molecular, genetic, evolutionary and ecological processes that will assist them in future advanced courses

Distribution: General Education. Prerequisite: Placement or MATH 098.

BIOL 170 - Medical Terminology (2)

An introduction to the basic building blocks of medical terminology with an emphasis on word formation and structure

Distribution: General Education. Prerequisite: Placement or MATH 092.

BIOL& 175 - Human Biology with Lab (5)

This human anatomy and physiology course includes a brief overview of the human body for the non-science major. Basics of chemistry and cell structure are introduced and then the major systems of the human body are emphasized.

Distribution: General Education. Prerequisite: Placement or MATH 092.

BIOL& 241 - Human Anatomy and Physiology I (5)

The first class in a two-quarter sequence in which human anatomy and physiology are studied using a body systems approach with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization

Distribution: General Education. Prerequisite: BIOL& 160.

BIOL& 242 - Human Anatomy and Physiology II (5)

This is the second in a two-quarter sequence in which human anatomy and physiology are studied using a body systems approach with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization

Distribution: General Education. Prerequisite: BIOL& 241.

BIOL& 260 - Microbiology (5)

This lab focused course is a survey of the biology of organisms too small to see without a microscope. It emphasizes the development of microscopy and culturing skills necessary to investigate the nutrition, grown, metabolism, isolation and identification of medically important bacteria. Lectures cover the concepts of microbial genetics and classification, infectious disease, immunity and immunization.

Distribution: General Education. Prerequisite: BIOL& 160.

BMST-Biomedical Service Technician Clinical Engineering

BMST 102 - Blood Borne Pathogens (3)

This course meets the requirements of OSHA's Bloodborne Pathogens requirements and standards that are found in Title 29 of the Code of Federal Regulations at 29CFR 1910.1030. To prepare and ensure a scientifically clean and sterile environment within the laboratory setting. Additional topics include biohazard awareness.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Compare and contrast critical policies regarding blood borne pathogens.
Demonstrate current procedures dealing with blood borne pathogens.

BMST 103 - HIPAA (2)

This course covers the uses and disclosures of identifiable health information that are allowed or permitted by the HIPAA Privacy Regulations. This course or portions of it may be fulfilled with an approved internship.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Explain HIPAA rules.
Follow the guidelines for patient file confidentiality.

BMST 105 - Testing Equipment (5)

This course covers how to safely use and operate a variety of ancillary test equipment. Students receive lecture and lab training as well as hands-on experience with actual equipment.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Analyze circuits using alternating current Ohm's law
Compare and contrast frequency, period and wave length
Define alternating current (AC)
Identify difference between inductors, capacitors and transformers

BMST 106 - Soldering (2)

This course covers most aspects of soldering, a basic requirement in electronic assembly and repair. Types of solder and systems as well as application and removal of solder and good soldering practices are emphasized.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate soldering techniques by repairing and/or maintaining circuit boards.
Read and interpret service guidelines.

BMST 107 - Schematics (3)

This course covers the process of drawing schematics/block diagrams, read and plan diagnostic procedures, and use a five-step troubleshooting/servicing format.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Analyze circuits containing resistors, capacitors, and inductors
Discuss the process of filtration using high and low pass filters
Measure AC waveform parameter
Identify the individual components listed in the diagram
Trace the signal path and the current flow path

BMST 109 - Applied Service I (3)

This introduction course prepares students to manage and repair shop projects. Projects may include preventive maintenance, installation, testing, calibration, and repair of various types of equipment.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Manage time and project flow.
Read and interpret service guidelines.

BMST 110 - Applied Service II (2)

This is a continuance course for students to manage and repair shop projects. Projects may include preventive maintenance, installation, testing, calibration, and repair of various types of equipment.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply Boolean logic and algebra
Program a PLC system to perform a task
Summarize the importance of the PLC in today's manufacturing and processing environments.
Perform advanced operation checks of equipment
Read and perform service flow checks

BMST 119 - Medical Equipment Research I (1)

This is an group research project meant to build research and presentation skills. Students are required to produce and present six research projects to an audience. Projects subjects may vary from medical equipment, companies or professional associations, among others.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Create and compose a research project and present it for review in front of their peers.
Develop a multi-media presentation utilizing technology and current software.
Perform as a team by preparing and presenting a research project.

BMST 120 - Biomedical I (3)

This course serves as an introduction to the interdisciplinary field of biomedical technology, which encompasses the application of engineering principles and techniques to solve problems in biology and medicine. Students will explore the fundamental concepts, methods, and technologies used in the development of innovative medical devices. Students will explore the design, operation and application of medical equipment crucial for monitoring and diagnosis of patients. Through hands-on experiences and theoretical studies, students will gain insights into how these instruments function and how they are utilized by healthcare professionals to improve patient care.

Prerequisite: None. Crosslisted as: EEST 114, EEST 115, EEST 116, BMST 119. Offered: Winter, Summer.

Outcomes
Gain an understanding of the principles and operation of biomedical instruments and technology.
Knowledge and application of how common sensors and transducers are used to gather biological signals.
Acquire practical skills in analyzing and interpreting data from diagnostic and monitoring ECG and pulse oximeter devices.
Demonstrate maintaining and testing medical devices using instrumentation.
Understand the importance of quality control measures and regulatory compliance in ensuring the safety and efficacy of medical devices, Emphasis on ISO 13485 and FDA.
Discuss emerging trends and innovations in biomedical technology and their potential impact on healthcare delivery.

BMST 121 - Biomedical II (3)

This course delves into the intricacies of two vital medical devices - defibrillators and electrosurgery units (ESUs). This course builds upon foundational knowledge in biomedical technology, focusing specifically on the design, operation, and application of defibrillators and ESUs. Through a blend of theoretical studies, hands-on laboratory experiences, and group activities, students will gain comprehensive insights into the generation of electric shocks for defibrillation and the mechanisms by which ESUs cut and coagulate tissues. Emphasis is placed on understanding schematics, testing device outputs, and ensuring compliance with quality control measures and regulatory standards.

Prerequisite: None. Corequisite: BMST 107, EEST 108, EEST 223. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Demonstrate a deep understanding of the principles and operation of defibrillators and electrosurgery units.
Explain common sensors and transducers are utilized to gather biological signals for effective device operation.
Demonstrate maintenance and testing procedures for ensuring the proper functioning of defibrillators and ESUs using instrumentation.
Understand the significance of quality control measures and regulatory compliance, with a focus on ISO 13485 and FDA standards, in ensuring the safety and efficacy of medical devices.
Discuss emerging trends and innovations in biomedical technology and their potential impact on healthcare delivery.

BMST 201 - Imaging Systems (3)

This course covers several types of imaging processes and the associated physics behind those systems. The class is lecture and lab based. Systems investigated may include ultrasound, x-ray, PET, MRI, and CT scan among others. This course or portions of it may be fulfilled with an approved internship.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Analyze and utilize various testing procedures and equipment
Compare and contrast CT and MRI scan theory and uses
Explain the origin and uses of each imaging theory and machine
Operate, diagnose and repair service issues of various imaging modalities

BMST 210 - Biomedical III (3)

This course extends the foundational knowledge gained in previous classes, delving into the design, operation, and clinical application of infusion pumps and hemodialysis machines. Through a combination of theoretical instruction, practical laboratory exercises, and collaborative group activities, students will deepen their understanding of how these treatment devices function and their crucial role in patient care. Emphasis will be placed on understanding the underlying mechanisms of infusion delivery and dialysis treatment, as well as the safety considerations and regulatory standards governing their use.

This course also introduces students to the utilization of specialized testing instruments, such as flow analyzers, for assessing the accuracy and consistency of fluid delivery in infusion pumps. Through practical exercises and laboratory demonstrations, students will learn how to calibrate infusion pumps, conduct flow rate measurements, and evaluate the performance of various infusion pump models under simulated clinical conditions. By gaining proficiency in testing methodologies and data analysis techniques, students will be equipped to identify potential discrepancies in fluid delivery and implement corrective measures to enhance patient safety and therapeutic efficacy.

Prerequisite: None. Corequisite: BMST 109, BMST 219, EEST 109, EEST 207. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Demonstrate comprehensive understanding of the principles and operation of infusion pumps and hemodialysis machines.
Demonstrate the integration of sensors and control mechanisms in infusion pumps for accurate medication delivery and dosage control.
Apply practical skills in configuring and calibrating infusion pumps for various medical applications.
Understand the process of hemodialysis treatment, including blood purification and fluid removal, and the role of hemodialysis machines in renal replacement therapy.
Discuss the importance of patient monitoring and safety features in infusion pumps and hemodialysis devices.

BMST 211 - Biomedical IV (3)

This course introduces students to the utilization of specialized testing instruments, such as pressure simulation instruments, for assessing the performance and reliability of mechanical ventilators and noninvasive blood pressure monitors. Through practical exercises and laboratory demonstrations, students will learn how to simulate various physiological conditions and evaluate device responses under controlled testing environments. By gaining proficiency in testing methodologies and data analysis techniques, students will be equipped to identify potential malfunctions or discrepancies in device performance and implement corrective measures as needed.

Prerequisite: None. Corequisite: BMST 110, BMST 201, BMST 215, EEST 221. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Demonstrate a thorough understanding of the principles and operation of mechanical ventilators and noninvasive blood pressure monitors.
Discuss the intricacies of ventilator mechanics, including modes of ventilation, tidal volume control, and positive end-expiratory pressure (PEEP).
Apply practical skills in setting up, calibrating, and monitoring mechanical ventilators for optimal patient support.
Understand the physiological principles underlying noninvasive blood pressure monitoring and the importance of accurate blood pressure measurement in clinical assessment.
Discuss different methods and technologies used in noninvasive blood pressure monitoring, including oscillometric and auscultatory techniques.
Demonstrate interpreting blood pressure waveforms and understanding the implications for patient health.
Show proficiency in performing routine maintenance tasks and troubleshooting issues with mechanical ventilators and noninvasive blood pressure monitors.
Discuss the utilization of specialized testing instruments, such as pressure simulation instruments, for assessing device performance and reliability.
Understand the regulatory requirements and quality assurance measures essential for the safe and effective use of medical devices, with a focus on ISO 13485 and FDA standards.
Discuss emerging trends and innovations in mechanical ventilation and noninvasive blood pressure monitoring, and their potential impact on patient care and outcomes.

BMST 215 - Introduction to Medical Terminology (3)

This is an introductory course on common medical terms, acronyms, roots, and prefixes associated with the biomedical field.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Compare and contrast medical prefixes and suffixes
Use proper medical terminology and medical abbreviations in a clinical setting

BMST 217 - Biomedical Instrumentation (5)

This course is an introduction to the more common transducers and devices used to gather biological signs or values. Students apply the operating principle and use of

various transducers and measurement devices and the physical theories they operate on.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Explain the physiological effects and biological compatibility of transducers in a medical setting
Explain the theory of transducers use in medical equipment

BMST 218 - Biomedical Equipment (3)

This course covers several types of medical equipment: ECG, Pulse Oximeter, NIBP and infusion pumps are some of the types of equipment. The history, use, theory of operation and maintenance issues are also presented. This course or portions of it may be fulfilled with an approved internship.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Compare and contrast the operation and use of various other biomedical equipment
Explain the operation of various pieces of medical equipment

BMST 219 - Medical Equipment Research II (2)

This is an independent research project meant to build research and presentation skills. Students are required to produce six research projects to an audience. Project subjects may vary from medical equipment, companies or professional associations, among others. Prior project approval from the instructor is required.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Create and compose a research project and present it for review in front of peers
Create and compose a research project containing an overview of topic and relationship to Biomedical Technicians.
Evaluate each team member's effectiveness using a Likert scale and work to resolve conflict of difficulties.
Perform as a team by preparing and presenting a research project.
Use technology and software to create and deliver a multimedia presentation

BMST 220 - Biomedical Engineering Applications (5)

During this course students are exposed to a lab setting meant to simulate an actual working environment. Students may intake, service, repair or evaluate medical or other types of equipment. Equipment may be provided by the class or public; students perform as closely as possible to a daily BMET routine. This course or portions of it may be fulfilled with an approved internship.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Assign and complete service projects
Use and repair biomedical equipment
Write work orders for scheduled repair of medical equipment

BMST 291 - Practical Applications (1-13)

During this course students are exposed to a lab setting meant to simulate an actual working environment. Students may intake, service, repair or evaluate medical or other types of equipment. Equipment may be provided by the class or public; students perform as closely as possible to a daily BMST routine. This course or portions of it may be fulfilled with an approved internship.

Distribution: Career Training. Prerequisite: INSTR. APP REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Apply practical theory and technical skills learned through classroom training to analyze and resolve problems within practical applications.
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

BMST 292 - Independent Projects I (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project l.

Distribution: Career Training. Prerequisite: INSTR. APP REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project I
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

BMST 293 - Independent Projects II (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project lI.

Distribution: Career Training. Prerequisite: INSTR. APP REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project II
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

BMST 296 - Work Based Learning Experience (1-13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR. APP REQ. Offered: Winter, Summer.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

BROAD-BroadcastingVideo Production

BROAD 103 - BVP Safety Principles (2)

This course is an introduction to the safety practices common to the broadcast and video production environment.

Distribution: Career Training. Offered: Summer.

BROAD 111 - Master Control Operations I (5)

This course is an introduction to the operation of all signal delivery system components used to feed audio and video

signals to the program feed. This is one of three classes (Broad 111, Broad 149, and Broad 150) that prepare students for the Society of Broadcast Engineers (SBE) Certified Television Operator exam.

Distribution: Career Training. Corequisite: Student must enroll in BROAD 111, BROAD 149, and BROAD 150 concurrently. Offered: Spring.

BROAD 132 - Intro to Studio and Field Production (5)

This course introduces basic equipment and basic skills used for video production in the studio and in the field. Students learn about cameras, lighting instruments, and audio equipment and the skills needed to complete production projects.

Distribution: Career Training. Offered: Fall, Winter, Spring.

BROAD 135 - Employment Preparation (3)

This course is designed for students to use publications, interviews and internet research, and other sources to gather facts about wages, hours, and working conditions to develop career goals. Students also write cover letters, resumes, and portfolios.

Distribution: Career Training. Offered: Summer.

BROAD 142 - Basic Digital Video Editing (5)

This course introduces students to audio and video editing methods. Practical applications include correcting recorded flaws and timing errors while editing pre-recorded material. Students perform to edit quality test standards.

Distribution: Career Training. Offered: Fall, Winter, Spring.

BROAD 144 - Intro to Network A/V Workflows (2)

This course introduces students to basic audio over Internet Protocol (IP). Successful completion results in an online Dante Level 1 Certification or other networking with audio visual (A/V) applications.

CIP: 10.0202

EPC: 628

Prerequisite: none. Crosslisted as: NA. Offered: Summer.

Outcomes
Describe various Power over Ethernet (PoE) standards.
Describe video basics for information technology (IT) and audio teams.
Explain operation of Audio over Internet Protocol (AoIP).

BROAD 147 - Production Process Theory (3)

This course introduces students to the production process; theory, planning, and application of sound project planning; and identification of the responsibilities of various jobs within the production unit is also included.

CIP: 10.0202

EPC: 628

Prerequisite: Students must be ready for 80-level General Education Classes. Corequisite: Students should enroll in BROAD 132, BROAD 142, and BROAD 147 simultaneously. Crosslisted as: NA. Offered: Fall, Winter, Spring.

Outcomes
Discuss television production jobs and possibilities.
Analyze the basic production process.
Develop working outline of production process.

BROAD 149 - Intro to Studio & Field Equipment (3)

This course provides an overview of the equipment used in television studios and field productions. It focuses on specific pieces of equipment in Bates Technical College's audio/video production studio and remote production systems from a technical perspective -- exploring the purpose of each piece of equipment, its basic operation, and how it is integrated into its audio/video/transmission system.

CIP: 10.0202

EPC: 628

Prerequisite: None. Corequisite: Student must enroll in BROAD 111, BROAD 149, and BROAD 150 concurrently. Crosslisted as: NA. Offered: Fall, Winter, Spring.

Outcomes
Identify primary control room and remote production equipment.
Demonstrate basic operation of primary control room devices.
Diagram control room and remote system configurations.

BROAD 150 - Basic Electronics Concepts (5)

This course introduces students to the study of direct-current and alternating-current electronic concepts. Topics include electrical terms, circuit components, electricity and magnetism, series and parallel circuits, Ohm's law, energy and power, and characteristics of AC waveforms. Lab activities prepare students for lectures and enhance their understanding of the principles presented in class sessions and through the Canvas learning management system. Activities include reading assignments, guided experimentation with DC and AC circuits, test equipment and tools, and a series of simple projects to develop soldering skills and understanding of circuits and circuit diagrams.

CIP: 10.0202

EPC: 628

Prerequisite: None. Corequisite: Student must enroll in BROAD 111, BROAD 149, and BROAD 150 concurrently. Crosslisted as: NA. Offered: Fall, Winter, Spring.

Outcomes
Identify and discuss basic functions of circuit components.
Apply current, voltage, and resistance principles (Ohm's law).
Discuss the characteristics of alternating current (AC) waveforms.
Discuss basic semiconductor concepts.
Demonstrate proper soldering techniques.

BROAD 154 - Introduction to CAD (2)

This is an introductory course for computer-aided drawing (CAD), useful in video and audio system documentation. It is an elective class recommended for all students planning on taking advanced broadcast engineering classes.

CIP: 10.0202

EPC: 628

Prerequisite: None. Corequisite: None. Crosslisted as: This course will be taught by advanced technology instructors as part of their 5-credit class on CAD. Students taking BROAD 154 will complete coursework in the first four weeks of the summer quarter. Offered: Summer.

Outcomes
Properly configure computer-aided design (CAD) software to meet drawing requirements.
Identify drawing tools and their applications in computer-aided design (CAD).
Use computer-aided design (CAD) tools such as shapes, lines, and labels to create and modify system documents.

BROAD 160 - Emerging Technology (5)

This course examines advances in audio and visual imaging. Emerging technologies are presented and explored.

CIP: 10.0202

EPC: 628

Prerequisite: None. Corequisite: None. Crosslisted as: N/A. Offered: Summer.

Outcomes
Discuss emerging audio and visual imaging technologies.
Analyze emerging audio and visual imaging technologies.
Apply new concepts to improve current systems.

BROAD 170 - Remote/Robotic Camera Systems (5)

This course introduces students to remote and robotic camera operations. Students will be prepared to take the Federal exam for sUAS certification.

Distribution: Career Training.

BROAD 218 - A/V Pre-Production Applications (4)

This course challenges students to put elements of pre-production planning into practice. Through helping plan and produce studio and field programs, students create program proposals, scripts, show formats, crew assignments, data gathering worksheets, program mark-sheets, guest invitations and release forms, and basic scripts for voice overs (VOs) and teleprompter presentations. Students will also be introduced to pre-production meetings with clients (when available) to create a finished product based on the client's needs.

CIP: 10.0202

EPC: 628

Prerequisite: Students must successfully pass core production courses, summer electives, and either core audio or engineering classes. Corequisite: Students should enroll simultaneously in BROAD 218, BROAD 288, and BROAD 241. Crosslisted as: NA. Offered: Fall, Spring.

Outcomes
Collect relevant information using a data input forms for the purpose of producing completed programs and booking guests.
Create program proposals including scripting, show formats, mark-sheets, teases, and voice-overs for the director, crew members, and hosts to follow A/V productions.
Research potential production guest officials and complete release forms to comply with copyright laws and create themes and topics for A/V productions.

BROAD 228 - Advanced Editing Projects (4)

This course requires students to conduct and complete an advanced digital editing project that meets industry content quality and delivery standards.

CIP: 10.0202

EPC: 628

Prerequisite: Students must successfully pass core Production courses, summer electives, AND either core audio classes or core engineering classes. Corequisite: Students should enroll simultaneously in BROAD 228, 230, and 232. Crosslisted as: NA. Offered: Winter, Summer.

Outcomes
Properly ingest, manipulate and export video/audio material.
Identify the codecs required for various media.
Complete industry level editing projects for distribution and delivery

BROAD 230 - Field Production (4)

This course develops advanced field production skills necessary to complete remote projects. Included are site surveying, planning, set up, and lighting of different venues while using single or multiple cameras.

CIP: 10.0202

EPC: 628

Prerequisite: Students must successfully pass core Production courses, summer electives, AND either core audio classes or core engineering classes. Corequisite: Students should enroll simultaneously in BROAD 228, 230, and 232. Crosslisted as: NA. Offered: Winter, Summer.

Outcomes
Set up video equipment for field production.
Set up audio equipment for field production.
Set up lighting equipment for field production.
Operate video, audio, and lighting equipment for field production.

BROAD 232 - Production Capstone III (4)

This course challenges students to demonstrate skills and knowledge gained in previous core and advanced classes to demonstrate mastery of fully producing, directing, and posting a digital video. Under the instructor's guidance, students produce at least one video (mini-documentary, news story, music video, or scripted-short feature) worthy of entry into National Academy of Television Arts & Sciences (NATAS) and/or other award-recognition competitions.

CIP: 10.0202

EPC: 628

Prerequisite: Students must successfully pass core Production courses, summer electives, AND either core audio classes or core engineering classes. Corequisite: Students should enroll simultaneously in BROAD 228, 230, and 232. Crosslisted as: NA. Offered: Winter, Summer.

Outcomes
Write and present program proposal of digital story ideas.
Discuss and evaluate story ideas.
Create and present complete industry-level digital video stories.

BROAD 240 - Audio & Video Engineering (4)

This course explores the design, installation, maintenance, and operation of audio and video equipment and systems. These functions support master control and

production operations, and field production.

CIP: 10.0202

EPC: 628

Prerequisite: Students must have passed BROAD 111, 149, 150 with a minimum GPA of 2.0 in each class before enrolling in BROAD 240. Corequisite: Students must take BROAD 240, 242 and 246 concurrently. Crosslisted as: NA. Offered: Fall, Winter, Spring, Summer.

Outcomes
Discuss the setup and alignment of test equipment and audio/video systems.
Design audio and video systems to industry standards.
Perform setup and/or installation of audio and video systems.
Demonstrate an understanding of broadcast audio and video systems required to successfully attain SBE (Society of Broadcast Engineers) CBT (Certified Broadcast Technologist) certification.

BROAD 241 - Production Capstone I (4)

This course challenges students to demonstrate skills and knowledge gained in previous core and advanced classes to demonstrate mastery of fully producing, directing, and posting (when applicable) two-panel (talk) shows, or other talk-show format content.

CIP: 10.0202

EPC: 628

Prerequisite: Students must successfully pass core Production courses, summer electives, AND either core audio classes or core engineering classes. Corequisite: Students should enroll simultaneously in BROAD 218, 288, and 241. Crosslisted as: NA. Offered: Fall, Spring.

Outcomes
Write and present program proposal for industry-level digital content.
Plan and produce live panel show.
Demonstrate directing skills by directing panel shows.

BROAD 242 - Content Delivery Systems (4)

This course investigates and applies various content delivery methods, including Advanced Television Systems Committee (ATSC) standards, live streaming, video on demand, and video over Internet provider (IP) systems.

CIP: 10.0202

EPC: 628

Prerequisite: Students must have passed BROAD 111, 149, 150 with a minimum GPA of 2.0 in each class before enrolling in BROAD 242. Corequisite: Students must take BROAD 242, 244, and 246 concurrently for degree pathway progress. Students must also take BROAD 234, 236, and 238 prior to or after taking BROAD 242, 244, and 246. Crosslisted as: NA. Offered: Winter, Summer.

Outcomes
Discuss various methods of content delivery.
Discuss elements of the Advanced Television Systems Committee (ATSC) delivery system.
Demonstrate live streaming to the Internet.

BROAD 246 - Networking for Audio & Video (4)

This course covers basic concepts of computer networking and applies them to audio and video systems.

CIP: 10.0202

EPC: 628

Prerequisite: Students must have passed BROAD 111, 149, 150 with a minimum GPA of 2.0 in each class before enrolling in BROAD 246. Corequisite: Students must take BROAD 242, 244, and 246 concurrently for degree pathway progress. Students must also take BROAD 234, 236, and 238 prior to or after taking BROAD 242, 244, and 246. Crosslisted as: NA. Offered: Winter, Summer.

Outcomes
Discuss basic networking concepts.
Contrast and compare common local area network (LAN) and wide area network (WAN) concepts with broadcast networking concepts.
Demonstrate computer networking competencies in audio and video systems as articulated in the SBE (Society of Broadcast Engineers) CBNT (Certified Broadcast Network Technologist) certification.

BROAD 284 - Practicum IV (4)

In this course the faculty assists students in selecting an approved practicum related to video production. Student responsibilities include the submission of a formal report of no less than 500 words or, with instructor approval, a formal class presentation of no less than 15 minutes.

Distribution: Career Training. Offered: Fall, Spring, Winter, Summer.

BROAD 289 - Practicum V (5)

In this course the faculty assists students in selecting an approved practicum related to television operations. Student responsibilities include the submission of a formal report of no less than 500 words or, with instructor approval, a formal class presentation of no less than 15 minutes.

Distribution: Career Training.

BROAD 292 - Independent Study (1-5)

This course allows students, under the guidance of their instructor, to explore an industry-related topic of their choosing. Students will work with their instructor to select the topic and design the course to meet the needs of the student and the requirements of the college and program curriculum.

Prerequisite: Instructor permission. Crosslisted as: NA. Offered: Fall, Winter, Spring, Summer.

Outcomes
The instructor sets learning outcomes to meet independent study needs.

BROAD 296 - Work-Based Learning (2-12)

In this course, students interact with industry or community professionals in real workplace settings, or a simulated environment at the college, to experience in-depth engagement with the duties and tasks typically found in the media communications industry.

CIP: 10.0202

EPC: 628

Prerequisite: Students must complete one quarter of advanced classes with a minimum grade point average of 2.0 prior to enrolling in BROAD 296. Instructor permission is required. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate industry-expected soft skills required for employment.
Demonstrate knowledge and skills required for entry-level employment in the media communications industry.
Communicate and collaborate effectively across diverse contexts to meet organization goals.

CARPT-Carpentry

CARPT 101 - Carpentry Math (3)

This course is an introduction to basic math concepts and their applications to the carpentry industry. Linear, board, and square foot measurements and using formulas to calculate material requirements and costs are emphasized.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply math to estimate materials for projects
Calculate feet, inches, tenths, and hundredths of a foot, and metric measurements
Solve for area (square footage)
Solve for volume (cube footage)

CARPT 102 - Safety Principles (3)

This course is an introduction to the safety concerns and procedures used in the construction field. Students apply approved construction site safety and health procedures, use personal protection gear, and safety use hand and power tools.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply OSHA and WISHA standards while building projects
Follow OSHA and WISHA procedures when using ladders and scaffolding
Follow shop safety procedures
List and define hand and power tool safety guidelines

CARPT 103 - Prints and Plans (4)

This course is an introduction to residential blueprint reading with emphasis on plan types, dimension lines, scaling prints, and the symbols and abbreviations common to a variety of construction plans.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Explain the various lines used in blue prints
Explain various symbols and abbreviations on building plans
Use an architect's ruler to draw an object to a specified scale

CARPT 104 - Construction Materials (2)

The selection and installation of various types of construction materials is emphasized. Students identify the types and sizes of lumber, the use of fasteners in carpentry, and the installation of hardware.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Define and describe hardwood and softwood
Define and describe nominal size and dress sized lumber
Identify and describe the benefits of engineered lumber
Identify the types and sizes of nails, screws, and fasteners commonly used in the construction industry

CARPT 105 - Tools and Equipment (4)

The proper use and care of measuring, layout and hand tools is emphasized.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Check squares and levels for accuracy
Correctly tie off a dry line
Identify and describe the uses of the different types of measuring tools
Plumb a post in both directions using a plumb bob

CARPT 106 - Power Tools (5)

This course is an introduction to the proper use and care of portable, stationary, electric and pneumatic equipment.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Perform a safety check, set up and operate various power and air-actuated tools : portable power saws, table saws, band saws, jointer, planer, drill press, air powered nailers

CARPT 107 - Optical Instruments (3)

This course is an introduction to the use of various transits and levels used in the construction industry.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Define H.I.
Set up and operate a variety of optical instruments
Set up Transit over hub using plumb bob
Shoot and layout angles using various optical instruments
Using feed and tenths of foot ruler operate an Engineer's rod
Using feet and inches ruler operate an Architect's rod

CARPT 108 - Plot Plans and Building Layout (3)

The interpretation of architectural plans and their application at the construction site is emphasized. Topics include the principles, equipment and methods used to perform the site layout tasks. The process of distance measurement as well leveling for site layout is also presented.

Distribution: Career Training. Offered: Spring.

Outcomes
Define hubs, datum points and monuments
Describe methods for determining grades and building floor elevations
Describe methods for locating property lines
Layout right angles using the 3-4-5 method
List the information given on plot plans
Set up batter boards

CARPT 109 - Introduction to Framing (4)

This course is an introduction to the procedures used to layout and frame walls and ceilings including roughing-in door and window openings, constructing corners and partition T's, bracing walls and ceilings, and applying sheathing.

Distribution: Career Training. Offered: Summer.

Outcomes
Define the different types of building designs
Describe the two different types of framing in residential construction
List and describe the steps to obtaining a building permit
List the information given on floor plans
Reference and apply building codes on specific framing sections

CARPT 110 - Foundation (3)

This course is an introduction to the materials and methods used to construct concrete forms and foundations including various reinforcement methods such as re-bar and welded-wire fabric.

Distribution: Career Training. Offered: Spring.

Outcomes
Create and complete an order for concrete from a ready mix plant
Define slump
Describe safety measures needed when working with concrete
List and define the concerns with pouring concrete in cold weather
List and define the different materials that make up concrete
List and define the different types of concrete

CARPT 111 - Foundation Footings (3)

In this course, the correct and accurate placement of footings and piers are emphasized.

Distribution: Career Training. Offered: Spring.

Outcomes
Define reinforced concrete
Define stepped footing
Describe how rebar is sized
Describe the safety measures needed when working in trenches
Identify the depth footings need to be buried
List and define the load carrying capacity of various soils
Set up footing form to correct elevation and dimensions

CARPT 112 - Foundation Walls (5)

This course is an introduction to the methods used to build, align and establish concrete grades in forms. Materials calculation is also included.

Distribution: Career Training. Offered: Spring.

Outcomes
Define a buck
Describe how a snap tie is used
Describe why duplex nails are used in form work
Estimate volumes of concrete in cubic yards for wall forms and footings
Explain what anchor bolts do
Explain where release agents are used
Set up wall forms using the rapid form panel system

CARPT 201 - Floor Systems (5)

This course is an introduction to the variety of floor types: requirements, assembly, and the advantages and disadvantages of each. Practical applications include the installation and finishing of hardwood floors, laminate/engineered floors and tile.

Distribution: Career Training. Offered: Summer.

Outcomes
Build post to beam connections using various methods
Define subflooring
Differentiate between solid wood joists and engineered I-joists
List and define the different supports, hangers, and hardware used in wooden floor systems
Perform proper nailing procedures
Size floor joists using span tables out of Carpentry work book

CARPT 202 - Wall and Ceiling Construction (5)

Students demonstrate how to frame walls and ceilings according to federal, state, and local requirements.

Distribution: Career Training. Offered: Summer.

Outcomes
Define the rough opening sizes for doors and windows
Define trimmers, cripples, headers and corners
Describe the structural importance of sheathing in wall framing
Identify the different components in load bearing and non-load bearing walls
Layout stud spacing using 16" on center spacing
Perform proper nailing when building wall components

CARPT 203 - Stairs (3)

This course is an introduction to the design and construction of residential and commercial stair systems. Topics include stair design factor, building code requirements, stair layout, cutting, installation and various tread/riser installations.

Distribution: Career Training. Offered: Summer.

Outcomes
Define rise and total rise, run and total run
Define stringers
Identify the basic shapes of stairways
Layout rise and run for stairways
Layout stair story pole

CARPT 204 - Introduction to Roofing (3)

This course is an introduction to the types of roofs including the layout of rafters for a variety of roof types: gable, hip, valley intersections. Both stick-built and truss-built roofs are included.

Distribution: Career Training. Offered: Fall.

Outcomes
Define exposure
Describe the difference between cedar shakes and shingles
Install flashing
Perform proper nailing of various products

CARPT 205 - Roof Construction (5)

Practical applications using conventional using conventional methods used for sheathing and exterior siding.

Distribution: Career Training. Offered: Summer.

CARPT 206 - Introduction to Exterior Finish Methods (4)

This course is an introduction to the materials and methods used for sheathing and exterior siding.

Distribution: Career Training. Offered: Fall.

Outcomes
Describe various caulks and their uses
Install vapor barriers on walls and roofs
Install various flashings around doors, windows and roofs

CARPT 207 - Exterior Doors and Windows (5)

This course is an introduction to methods used to install a variety of windows, skylights, and exterior doors. The installation of weather-stripping and locks is also included.

Distribution: Career Training. Offered: Fall.

Outcomes
Define low E
Describe the different types of windows
Properly set an exterior doors
Properly set an exterior window

CARPT 208 - Siding (5)

In this course, the types of exterior siding, surface covering systems, and the equipment used to apply them are emphasized.

Distribution: Career Training. Offered: Fall.

Outcomes
Define reveal and exposure
Describe the different vapor barriers
Estimate amount of siding materials needed
Install siding on inside and outside corners
List different types of siding

CARPT 209 - Introduction to Interior Finish Methods (3)

This course is an introduction to the types of interior systems, materials, and hardware commonly used in residential and commercial construction. The development of estimating skills to determine the cost of materials is also introduced.

Distribution: Career Training. Offered: Winter.

Outcomes
Describe the difference between conduction, convection and radiation
Install batt insulation in a wall and ceiling space
List at least four types of insulation materials

CARPT 210 - Interior Floors, Walls and Ceilings (4)

This course emphasizes surface preparation and application methods that meet federal, state, and local requirements. Also included are methods used to protect the interior of a structure against natural and man-made elements.

Distribution: Career Training. Offered: Winter.

CARPT 211 - Interior Doors and Windows (5)

Proper sequences used to set doors and install trim and hardware for doors and windows is emphasized in this course.

Distribution: Career Training. Offered: Winter.

CARPT 213 - Employment Preparation (2)

This course is an introduction to the basic methods of job searching, resume writing and job interviewing.

Distribution: Career Training. Offered: Winter.

Outcomes
Produce a completed resume
Register with the Job Service Center

CARPT 292 - Independent Projects (2)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: Winter.

CARPT 296 - Work-Based Learning Experience (1-13)

This course is Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider. *INSTRUCTOR APPROVAL REQUIRED

Distribution: Career Training. Prerequisite: INSTR APP REQ. Offered: Fall, Winter, Spring, Summer.

CARPT 297 - Work-Based Learning Seminar (2)

This course is Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider. *INSTRUCTOR APPROVAL REQUIRED

Distribution: Career Training. Prerequisite: INSTR APP REQ. Offered: Fall, Winter, Spring, Summer.

CARTS-HospitalityCulinary Arts

CARTS 101 - Intro Fundamentals to Culinary Arts (6)

This course is an introduction to the social, historical and cultural forces that have affected the culinary, baking and pastry professions

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate proper sanitation and safety
Discuss the developments of the culinary traditions of Europe and the Western world
Identify kitchen equipment and utensils used in the industry.
Use the appropriate knife to make a variety of cuts and shapes

CARTS 104 - Customer Service (3)

This course is an introduction to table service principles with an emphasis on the physical aspects of table service: types of table service, table settings, and restaurant/dining room setup. Wine, beer, coffee, tea and non-alcoholic beverage service is also presented.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Be familiar with the organizational chart of a restaurant's "Front of House"
Define the principles of exceptional table service
Demonstrate proper sanitation and safety
Identify styles of service
Identify the elements of the table
Identify various types of table settings

CARTS 105 - Garde Manger I (1)

This course introduces students to the preparation methods of cold foods including salads and salad dressings, cold appetizers and buffet items, and vegetable and fruit decorations

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate the proper care and storage of fresh produce
Identify and select quality sandwich breads
Identify canapés and other cold hors d'oeuvres
Identify sandwich spreads
Identify the major salad dressing ingredients
Identify the most popular sandwich fillings
Use and care for cold food equipment

CARTS 106 - Breakfast Methods (2)

This course includes both theory and lab applications in breakfast preparation with an emphasis on the organization and maintenance of a smooth workflow on the breakfast line. Food preparation areas include eggs, quick breads, meat and potatoes, grains, fruit plates and breakfast beverages.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply the theory and practice of traditional morning delicacies
Prepare a variety of hot and cold breakfast items
Work effectively on the breakfast line

CARTS 111 - Introduction to Baking (5)

This course is an introduction to quick doughs, yeast products, and the basic preparation methods used with pies, breads and cookies.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate accurate scaling of ingredients.
Demonstrate an awareness of correct baking procedure and terminology
Demonstrate proper sanitation and safety
Demonstrate the ability to work as a member of a team
Prepare a variety of pastries, cakes, and cookies

CARTS 112 - Advanced Cooking Techniques (5)

Advanced concepts of food preparation and presentation techniques. Reinforces and advances techniques, terminology and course material.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Practice and demonstrate a variety of specialized cooking techniques that challenge current abilities.
Demonstrate special presentation techniques needed for a variety of foods both in a banquet/buffet presentation and in individual plate presentations.
Define, demonstrate and evaluate for quality various cooking techniques and processes including, sautéing, pan frying, deep frying, shallow poaching, simmering, grilling, broiling, roasting, baking and combination cooking methods.
Prepare and present a variety of breakfast, lunch, dinner and appetizer items in both a buffet/banquet and in individual plate presentations.

CARTS 150 - Cooking Techniques (6)

This course covers the identification and use of a variety of products including vegetables, fruits, herbs, nuts, grains, dry goods, prepared goods, dairy products and spices. This is also an introduction to theory and cooking techniques in product tasting, stock production, stews, broths, and advanced soups, along with starches such as potatoes, grains, rice and pasta. Timing, station organization and culinary French terminology are also presented.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate basic sanitation and safety
List the preparation and cooking techniques of meat, fish, shellfish, vegetable, and starch
Bring prep kitchen inventory to a level of inventory production for "just in time" finishing for the daily menu
Demonstrate continued growth in the application of theory to the preparation of foundational components of the various meal parts
Describe proper storage of a variety of perishable and non-perishable products
Identify and analyze products for quality
Prepare a variety of soups, sauces and starches
Recognize the common and proper receiving and storage practices

CARTS 151 - Cooking Techniques II (6)

Students receive instruction and practice in advanced cooking methods used to simultaneously prepare vegetables, pastas, starches, proteins and contemporary sauces. Protein cookery methods, both moist and dry, are presented. Also included are culinary French terminology, station organization, plate presentation, and product tasting and evaluation.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Define French terminology
Demonstrate continued growth in the application of theory to the preparation of foundational components of the various meal parts
Organize cooking stations
Taste and evaluate a variety of food, including sauces
Use a variety of methods (moist and dry) to cook meats and vegetables

CARTS 152 - Introduction to Food Truck (5)

This class will concentrate on licensing requirements, preparing for and operating the food truck including marketing strategies. Emphasis is on the development of a comprehensive business plan.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply learned skills to provide quality customer service.
Demonstrate proper safety and sanitation procedures in the kitchen and in a mobile food service setting
Define shared business operations and the business environment
Describe the licensing and permitting needs for the area of operation
Develop a marketing plan to include social media
Follow established procedures to obtain licenses, permits and clearances
Follow fire codes and zoning laws
Review and select a vehicle for mobile food service

CARTS 153 - Mobile Food Operations (6)

This class will concentrate on the safe and sanitary operation of a mobile food truck.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate ability to use appropriate cooking techniques and equipment in a mobile food service setting.
Demonstrate ability to work on a mobile food service line.
Demonstrate proper safety and sanitation procedures in the kitchen and in a mobile food service setting.
Cost and price food costs and menu items
Define the principles of exceptional table service
Describe the issues that food service managers must handle successfully
Identify styles of service
Purchase product in a managed environment to preserve quality, provide security and prevent waste

CARTS 154 - SERVSAFE SANITATION (3)

This course focuses on food production practices that are governed by changing federal and state regulations. Content includes prevention of food-borne illness, HACCP procedures, facility sanitation, and guidelines for safe food preparation, storage and reheating. Students take the NRA ServSafe examination in this course.

Distribution: career Training. Offered: Fall, Spring.

Outcomes
Demonstrate knowledge of safety and sanitation procedures
Pass 2 hour proctored SERVSAFE test with a grade of 75% or better and receive certification as a SERVSAFE Food Manager.
Practice kitchen "housekeeping" teamwork
Practice proper ware washing procedures
Prepare a daily menu in a production kitchen in strict accordance with current federal and state regulations

CARTS 155 - Nutrition (3)

Introduction to Nutrition This course introduces students to the basic concepts of nutrition and gives them tools for healthy eating. Topics covered include carbohydrates, fats, proteins, vitamins, minerals, life cycle needs, and diets. Individual dietary habits will be closely examined through a self-evaluation of personal diet studies. This course provides important basic knowledge in making personal dietary decisions. This course also emphasizes food safety, diet planning tools available to consumers and chefs, apply dietary guidelines to plan and prepare menus and recipes.

Offered: Fall, Spring.

Outcomes
Describe how diet, food production, and the environment inter-relate to impact human health
Identify world food problems and their relationship to the food production cycle
Interpret nutrition information on food labels.
Research global perspective of food and nutrition issues that impact our world

CARTS 201 - Menu Development (2)

The creation of menus from the perspective of concept, clarity, cost, price and efficiency is the focus of this course. Topics to be introduced include menu descriptions, layout, design and pricing.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Calculate cost
Create a variety of cost-effective menus
Research recipes and their ingredients' cost

CARTS 202 - Protein Identification/Utilization (3)

This is an introduction to a variety of meats, poultry and seafood used in a food service operation. Students identify, select, and prepare various types of meat, poultry and fish/shellfish.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Cut steaks
Cut up poultry
Demonstrate the ability to work as a member of a team
Describe common varieties of fresh and saltwater fish
Describe proper storage and handling techniques for the storage of meats, seafood and poultry
Fillet, cut and portion fish
Grade beef, veal and lamb
Identify prime cuts of lamb, pork and beef
Make cube steaks

CARTS 204 - Pastries and Plated Deserts (5)

The preparation and service of a variety of hot and cold desserts is emphasized in this course. Students prepare frozen and individually plated desserts for functions and banquets. The development of a dessert menu emphasizing variety is a focus of the course.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Develop production sheets including portion size, serving temperatures, quantities, garnish and timing
Evaluate and create menu specials using several components (sauce, ice cream, cookies and sugar) and present contrasts in texture and flavor
Prepare complex recipes using proper preparation techniques with an emphasis on presentation
Prepare various hot and cold desserts using specialty and seasonal ingredients

CARTS 211 - Student Practical (5)

This course prepares students to provide formal service in a variety of elegant settings. Emphasis is on food preparation, service and plate presentation that reflect artistry and style.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate serving techniques
Demonstrate various types of napkin folds
Maintain a buffet
Set up for banquets and catering services

CARTS 213 - Wines/Spirits (4)

This course is an introduction to the serving of alcoholic beverages and their appropriate pairing with menu items. Students review the procedures for purchasing alcoholic beverages and apply those skills when planning, budgeting and managing bar service.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Define responsible alcohol service management methods
Demonstrate the proper serving techniques for alcoholic beverages
Identify levels of intoxication and methods to control excessive consumption by guests.
Match various cocktails with foods

CARTS 250 - Catering/Banquets (6)

This course is an introduction to the catering and banquet industry with emphasis on the requirements needed to start an operation and manage its daily operations. Students develop an understanding of the oprganization and equipment needed.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Describe appropriate methods of scheduling space, time periods and staff for a variety of catering functions
Describe the appropriate setup and staffing of a banquet room for service
Describe the basic elements of a catering function
Identify guest payment methods

CARTS 252 - Regional Cuisines of North America (4)

This course Regional cuisine explores the use of indigenous ingredients in the preparation of traditional and contemporary North American specialties. Students prepare, taste, serve, and evaluate traditional regional dishes.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Identify culturally influenced cuisines per locally and regionally
List the various influenced dishes representing regionally and locally grown
Research the various traditional North American dishes
Demonstrate continued growth in the application of theory to the preparation of a variety of classic American meals
Demonstrate knowledge of safety and sanitation procedures
Demonstrate the ability to work as a member of a team
Prepare, taste, and serve a variety of traditional American regional dishes

CARTS 253 - Sustainability/Organic Foods (4)

This course incorporates the study of sustainable best-practices emphasizing resource conservation, agro ecology and essential business skills/abilities. Students implement theoretical classroom concepts in the kitchen and through experiential learning opportunities.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Identify sources of local foods, water/energy/food conservation programs, and sustainable food operations
Produce a final project/presentation on local agricultural resources and processes that includes an interview with a local food producer.
Research and identify a local agricultural resource and water/ energy/ food conservation program as part of a research project/presentation.

CARTS 254 - Modern Bread Techniques (3)

In this course students will learn the details of mixing, fermenting, shaping, and baking bread in this essential introductory course. The course covers baker's math, ingredient selection and function, how mixing affects fermentation, and other bread-baking fundamentals.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Components, such as contrasts in texture and flavor, in yeast-leavened breads
Develop production sheets including portion size, bread temperatures, quantities, garnish, and timing
Prepare a complex recipe using proper preparation techniques with an emphasis on baking artisan breads
Prepare an assigned 'Bread of the World' in a lab environment.

CARTS 255 - Culinary Trends (2)

This course introduces students to current culinary trends, including a variety of preparation methods. Topics include adaptation of native/regional ingredients and preparation methods to developing trends in contemporary cuisine.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Combine healthy ingredients to create specialty items used in finer restaurants.
Demonstrate continued growth in the application of theory to the preparation of a variety of classic American culinary dishes.
Research and write a recipe that caters to alternative dietary preferences, world food trends, or prevalent food allergies that exemplify current culinary trends.

CARTS 256 - Intro to Management (4)

This course is an introduction to the various management topics as they relate to food service management: leadership, training, motivation, delegation, problem-solving, decision-making and conflict resolution.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate proper ability to use appropriate cooking techniques/equipment in all areas of the kitchen.
Demonstrate proper sanitation an safety
Demonstrate the ability to lead a team through day-to-day restaurant operations
Demonstrate the ability to solve problems individually and in a team environment
Apply principles of management to solve real business problems as they relate to the culinary arts field
Explain the principles of management
Manage effectively in a food service environment

CARTS 257 - Culinary Flavor Profiles (5)

This course covers the important cooking concept of combining and balancing flavors. Flavor profiles encompass the analysis of what contributes to the flavor of the products that we eat and the development of flavors that will work in a wide variety of products.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply the philosophy of flavor profiles in the culinary world in the preparation of various meal parts.
Demonstrate continued growth in the application of theory to the preparation of foundational components of the various meal parts based on culinary trends.
Describe how diet, food production, and the environment interrelate to impact human health in a modern culinary era.
Research and write a report on staple dishes or products from Africa, the Middle East or Asia that exemplify a distinct flavor profile.

CARTS 258 - Garde Manger II (5)

This course is a continuation of the concepts introduced in CARTS 105; students prepare cold foods including salads, salad dressings, cold appetizers, buffet items, as well as vegetable and fruit decorations.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Create garnishes to enhance plate presentation
Identify and describe five different salad types, and select appropriate recipes for use as an appetizer, accompaniment, main course, separate course or dessert salad
Prepare a variety of cold foods including salads, fruits and sandwiches
Prepare salad dressings to complement a variety of salads

CARTS 291 - Practical Applications (1-13)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTRUCTOR APPROVAL.

CARTS 292 - Independent Project I (1-5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project l.

Distribution: Career Training. Prerequisite: INSTRUCTOR APPROVAL.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project I
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

CARTS 293 - Independent Project II (1-5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project lI.

Distribution: Career Training. Prerequisite: INSTRUCTOR APPROVAL.

Outcomes
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project II
Demonstrate effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Practice professionalism ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

CARTS 294 - Independent Project III (1-5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project lII.

Distribution: Career Training. Prerequisite: INSTRUCTOR APPROVAL.

Outcomes
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project III
Demonstrate effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

CARTS 296 - WORK-Based Learning Experience (1-13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTRUCTOR

APPROVAL.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

CCNT-Cloud Computing and Network Technology

CCNT 110 - Fundamentals of Linux (4)

This course teaches the fundamentals of the Linux operating system. Topics include the Linux file system, file permissions, application installation, command-line interface (CLI), and basic scripting. Students compare and contrast Linux and Windows operating systems. Lab exercises reinforce applications of concepts.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Describe the Linux file system and file permissions to 80% accuracy.
Implement application installation through the terminal and through script execution to industry standards.
Create Bourne Again Shell (Bash) scripts to 80% accuracy.
Create and manage user accounts to industry standards.

CCNT 120 - Cloud Computing (4)

This course covers the fundamentals of building information technology (IT) infrastructure on the Amazon Web Services (AWS) platform. Students learn how to optimize the AWS Cloud by understanding how AWS fits into cloud-based solutions. In addition, students explore AWS Cloud best practices and design patterns for architecting optimal IT solutions on AWS and building various infrastructures.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Demonstrate data replication and redundancy with managed services in the workplace/lab environment to industry standards.
Plan and implement data and services migration to the cloud to industry standards.
Demonstrate scaling and elastic load balancing in the cloud environment to industry standards.
Demonstrate configuration of access control in the cloud environment to industry standards.

CCNT 130 - Server Administration (4)

Server operating systems make up the foundation for computer network administration locally and in the cloud. This course gives the learner an in-depth knowledge of Windows Server identity-related services -- including Active Directory, user and group accounts, Group Policy, and Active Directory Certificate Services (ADCS). Students also learn advanced identity solutions such as Active Directory Federation Services (ADFS) and Active Directory Rights Management Services (ADRM).

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Explain the role of domain controller in a Windows domain to provide central administration to 80% accuracy
Create group policies to workplace/lab standards.
Demonstrate user and service account configuration to industry standards.
Explain the use of Active Directory Certificate Services (ADCS) in a Windows domain to implement security measures to 80% accuracy.

CCNT 140 - Cisco Networking Fundamentals (4)

This course teaches students the basic concepts of communication between computers over a network and the internet. Topics include the Open Systems Interconnection (OSI) model, Cisco Internetwork Operating System (IOS), configuration of switches and routers, and network

security.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Construct a small network with security best practices.
Create IPv4 and IPv6 addressing schemes and verify network connectivity between devices to industry standards.
Troubleshoot connectivity in a small network to 80% accuracy.
Explain the purpose of the layered Open Systems Interconnection (OSI) model to 80% accuracy.

CCNT 150 - Server I (4)

This course covers the planning and installation of a server operating system. Covered topics include servers roles including Dynamic Host Configuration Protocol (DHCP), Domain Naming System (DNS), remote access, and distributed file systems.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Install Windows Server operating system (OS) to Microsoft Windows OS standards.
Implement Virtualization with Hyper-V to industry standards.
Configure storage and file systems to industry standards.
Explain server backup strategies to 80% accuracy.

CCNT 160 - Cisco Routing & Switching (4)

The course introduces students to the skills and information needed to design, build, and maintain small- to medium-sized networks. Students learn about routing theory and router technologies.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Describe the use of VLANs (Virtual Local Area Networks) with 80% accuracy.
Create static routes and dynamic routing implementations to industry standards.
Describe the use of Spanning-tree protocol with 80% accuracy.
Create redundancy solutions that meet industry standards using Etherchannel and First Hop Redundancy Protocol (FHRP).

CCNT 210 - Server II (4)

This course introduces the learner to the use of a server operating system and to manage networking services in a domain. Topics include Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), storage access, and virtual networking.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Implement a Domain Name System (DNS) server in a domain to meet industry standards.
Implement Dynamic Host Configuration Protocol (DHCP) in a network to meet industry standards.
Design a Distributed File System (DFS) solution in a domain to meet industry standards.
Identify the options for remote access to Local Area Network (LAN) to 80% accuracy.

CCNT 220 - Cisco Enterprise Networking, Security & Automation (4)

Enterprise Networking, Security, and Automation (ENSA) describe the architecture, components, operations, and security to scale large, complex networks, including wide area network (WAN) technologies. The course emphasizes network security concepts and introduces network virtualization and automation. Students learn how to configure, troubleshoot, and secure enterprise network devices. They learn how application programming interfaces (API) and configuration management tools enable network automation.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Configure single-area OSPFv2 (Open Shortest Path First) in both point-to-point and multiaccess networks to 80% accuracy.
Explain how to mitigate threats and enhance network security using access control lists and security best practices to 80% accuracy.
Configure NAT(Network Address Translation) services on the edge router to provide IPv4 (Internet Protocol Version 4) address scalability to industry standards
Explain how networking devices implement QoS (Quality of Service) to 80% accuracy.

CCNT 230 - Cloud Administration (4)

This course emphasizes best practices and recommended design patterns in Amazon Web Services (AWS) Cloud. It teaches students how to solve problems and troubleshoot various scenarios in cloud administration. The course shows students how to create automatable and repeatable deployments of networks and systems in AWS. It covers specific AWS features and tools related to configuration and deployment.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Implement and control data flow to and from Amazon Web Services (AWS) to industry standards.
Deploy, manage, and operate scalable, highly available, and fault-tolerant systems on Amazon Web Services (AWS) to industry standards.
Identify appropriate use of AWS operational best practices to industry standards.
Identify appropriate use of Amazon Web Services (AWS) operational best practices to 80% accuracy.

CCNT 240 - Scripting (4)

Scripting helps system administrators and power-users rapidly automate tasks that manage operating systems (Linux, macOS, and Windows) and processes. This course introduces the learner to scripting environments, techniques, and troubleshooting. Emphasis is given to hands-on practice.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Demonstrate Using of PowerShell Integrated Script Environment (ISE) in a workplace/lab environment.
Identify the use of environment variables.
Demonstrate writing scripts using the PowerShell object-oriented pipeline in the workplace/lab environment.
Demonstrate Implementation of PowerShell Remoting capabilities within the workplace/lab environment.

CCNT 292 - Independent Projects (4)

This project-based course gives the learner an environment to use and reinforce skills learned in the program with guidance and assessment from the instructor.

CIP: 15.1202

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Apply knowledge and skills learned through classroom training toward transitioning from school to working in the industry.
Evaluate learning development through written reports or projects to demonstrate improvement in skills and knowledge.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within the independent project.

CEET-Civil and Environmental Engineering Technology

CEET 121 - Statics & Mechanics of Materials (5)

This course is an introduction to how surveyors and engineers calculate points along lines and curves typically used in the field. The student learns how to draw problems to scale, the concept of bearings, and the use of trigonometry to solve right triangles. Horizontal and vertical curves are introduced. A fundamental course in the mechanics of rigid bodies in static equilibrium conditions. Solves practical engineering problems involving the loads carried by structural components using Static principles, vector notation and precalculus for mathematical

modeling. Teaches principles and their limitations within the context of Engineering applications and the engineering design process.

Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Fall.

Outcomes
Define and model concepts from physics to applied mathematics for determining relevant information for analysis.
Construct and solve free-body diagrams for physical systems in applied mechanics
Analyze material responses to loading under various conditions.
Effectively communicate analysis of common industry problems with their peers using appropriate vocabulary and notation.

CEET 122 - Building Information Modeling (5)

Concepts of collaborative design and workflow theory, intelligent modeling, cost estimation, construction phasing, operation and maintenance, lean project management are applied to civil structural designs.

Distribution: Career Training. Corequisite: AMATH170. Offered: Winter.

Outcomes
Produce models for full project life cycle, including planning, engineering design, construction management, and operations and maintenance.
Evaluate how building information modeling facilitates coordination between the competing perspectives of an integrated infastructure design team.
Design intelligent virtual infastructure models to an entry-level proficiency in industry.

CEET 131 - Hydrological Engineering (5)

Urban water infrastructure theory and planning for distribution, collection, and treatment systems are discussed. Engineering computations are applied for design.

Distribution: Career Training. Corequisite: AMATH170. Offered: Spring.

Outcomes
Describe the principles of the hydrologic cycle and the history of water management engineering.
Analyze a site to determine watershed boundaries, model runoff quantities, and appropriate mitigation techniques.
Apply quantitative methods to predicting precipitation, runoff flow rate, and storage quantities

CEET 132 - Civil Infrastructure Design (5)

Concepts of environmental impact assessments, LID, urban water quality and flow control mitigation, permit documentation.

Distribution: Career Training. Corequisite: AMATH170. Offered: Spring.

Outcomes
Demonstrate the use of the fundamental concepts and equations of fluid mechanics as applied to infastructure design.
Solve various applied problems using the principles and equations for open channel and pressure flow systems.
Produce utility plans, for sites of varying impact intensities and uses, to an entry-level proficiency in industry.

CEET 141 - GIS for Asset Management (5)

Geospatial analysis for civil and environmental applications, including asset management and maintenance, are discussed. Technical skills of data types, attributes, query building, route optimization, watershed and steep slope analysis are developed.

Distribution: Career Training. Corequisite: AMATH170. Offered: Summer.

Outcomes
Identify potential bias, limitations, and impacts to the business process of asset management from GIS data.
Analyze GIS data to determine the accuracy and integrity of both spatial features and attributes.
Effectively integrate construction data with GIS asset management system.

CEET 142 - Applied Surveying (5)

Land measurement techniques for construction, including site layout and topographical studies. Computer processing of points into modeled surfaces and alignments are also examined.

Distribution: Career Training. Corequisite: AMATH170. Offered: Summer.

Outcomes
Determine layout measurements using numerical methods common to surveying
Report on cultural differences of land measurement techniques used in both historic and modern eras
Create digital layouts of profiles, alignments, and topography from survey point databases

CEET 231 - Projects I (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Corequisite: AMATH170. Offered: 6.

Outcomes
Connect theory and technical skills learned through classroom training to analyze and resolve problems with independent project I.
Demonstrate ethically and culturally relevant behavior as a professional in the lab/classroom environment.
Apply effective oral, written and analytical communication appropriate to role and lab/classroom environment.

CEET 232 - Projects II (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Corequisite: AMATH170. Offered: 6.

Outcomes
Demonstrate ethnically and culturally relevant behavior as a professional in the lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project I.
Apply effective oral, written and analytical communication appropriate to role and lab/classroom environment.

CEET 251 - Soil Mechanics (5)

Application of soil mechanics in design and construction, including soil classification, testing, erosion control, compaction, saturation, as well as analysis of basic foundation and retaining wall design.

Outcomes
Draw conclusions from tests to determine the engineering properties of soils
Interpret soil classification, physical and chemical soil properties, water flow through soils, consolidation, and settlement
Calculate soil mechanics to quantify engineering behavior of soils under different loading scenarios

CEET 252 - Structural Design (5)

Introduces the principles of section area properties for basic structural types, such as trusses, beams and columns. Sustainable design issues including material selection and life cycles.

Outcomes
Evaluate the fundamental principles concerning the behavior of structures under a variety of loading conditions
Develop methods to analyze statically determinate and indeterminate structures
Utilize software to model structural behavior under a variety of loading conditions

CEET 260 - Advanced CAD Operations (5)

CAD systems, including 3D concepts are used to produce engineering drawings using layers, masks and groups. Symbols and x-references are applied.

Outcomes
Utilization of principles, hardware and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering sampling and measurement.
Employ effective oral, written and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and culturally relevant manner as a professional in the workplace environment.
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.

CEET 261 - Civil and Environmental Site Design (5)

Basic corridor designs, pip networks and retention/detention swales and ponds are modeled. Grading, design speeds, corridor assemblies, catch points, profiles and alignments.

Outcomes
Identify applicable municipal codes relevant for specific engineering site design applications
Design a site that addresses environmental impacts and land use infrastructure requirements
Create virtual models of grading and infrastructure for preliminary site development plans

CEET 296 - Work-Based Learning Experience (1-13)

Work-Based Learning Experience (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries area. The learning activity is based on a written agreement with the participating training provider.

Outcomes
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.

CEET 297 - Work-Based Learning Seminar (1-2)

Students enroll in the Work-Based Learning (WBL) Seminar in order to receive an orientation to the work-based learning experience. Faculty meet with students to provide support and assistance during the experience.

Outcomes
Define knowledge and skills learned through classroom training towards transitioning from school to working in industry
Demonstrate effective oral, written, and analytical communication appropriate to role and work environment

CHEM Chemistry, Natural Sciences

CHEM& 121 - General Chemistry (5)

Students in this course explore the structure of matter and how it behaves under various conditions in order to better understand the chemical world. Designed for students with little or no chemistry background. Laboratory activities and extended lecture concepts introduce the students to the experimental process.

Distribution: Gen-Ed. Prerequisite: Placement or MATH098.

CHEM& 131 - Introduction to Organic/Biochemistry (5)

Introduction to organic chemistry and biochemistry includes the study of the nomenclature, structure, reactions and synthesis of organic compounds and biochemistry applications in the nursing fields. The course is primarily intended for those who are interested in the application of the principles of organic chemistry and biochemistry to related areas of science, such as genetics, microbiology, physiology and nutrition.

Distribution: Gen-Ed. Prerequisite: CHEM&121.

CMA-Certified Medical Assistant

CMA 114 - Introduction to the Health Care Profession (3)

This course is an introduction to the basic concepts of the certified medical assistant profession with emphasis on professional behaviors as they relate to the patient-physician-medical assistant relationship.

Offered: Winter, Spring.

Outcomes
Analyze industry's ethical/legal issues
Apply OSHA/WISHA safety guidelines
Display behaviors consistent with acceptable work habits, health habits, and interpersonal attributes
Use the industry vocabulary

CMA 150 - Medical Office Clinical Applications I (6)

This course focuses on the principles of medical office clinical procedures including preparing a patient for assisting a physician with examinations, procedures, and components of patient history. Covers patient charting, vital signs, sterile setups, universal blood precautions and methods of asepsis and sterilization. Topics also include techniques in patient interviewing and education. Lab provides the opportunity for practice proficiency in procedures.

Offered: Winter, Summer.

Outcomes
Obtain and document patient history
Correctly obtain a complete set of patient vital signs.
Correctly perform patient charting
Identify various surgical instruments
Perform patient interviewing and education
Perform proper ear and eye care
Perform proper hand washing technique
Recognize the impact personal ethics and morals have on the delivery of healthcare.

CMA 151 - Medical Office Clinical Applications II (6)

This course is a continuation of Medical Office Clinical Applications I, covering assisting with other medical specialties, electro-cardiology, pulmonary function tests, emergency preparedness, nutrition and health, geriatrics and rehabilitation/therapy.

Offered: Fall, Spring.

Outcomes
Assist in other medical specialties; Oncology, Allergy and Naturopathic medicine
Perform electrocardiogram (EKG)and pulmonary function test (PFT)
Properly educate patient regarding good health and nutrition
Discuss the EKG and PFT procedure to patient(s)
Discuss the geriatric population and health education of the aging adult, societal bias and psychological changes.
Identify the general principles of physical therapy and other specialized therapies
Inform patients on the use of rehab equipment; crutches, walker and wheelchair
Practice cultural competence with peers in mock patient care.
Prepare for medical emergencies, disasters and pandemics

CMA 152 - Medical Office Laboratory Procedures (4)

Introduction to specimen collection and processing. Students perform basic CLIA waived (1988) hematology, chemistry and immunology testing; microscopic urine tests including gram smears and hcg; basic culture techniques and blood typing. Introduction to equipment use and maintenance, re-agent storage and handling, quality control measures and lab safety.

Offered: Winter, Summer.

Outcomes
Demonstrate successful blood drawing procedures using the different methods of collection, including special patient populations.
Display professional behavior and use of appropriate protective equipment (PPE) for various procedures in a simulated medical lab setting.
Examine specific websites to review and become familiar with the CLIA laws.
Explore cultural competence and how it effects patient care while obtaining pertinent patient information and displaying sensitivity to patients rights and feelings.
Interpret and order specific lab tests; educate/instruct the patient on normal and abnormal lab results and preparation for specialty lab tests in a mock scenario.
Obtain proper specimens for urine, microbiological and specialty testing.
Properly maintain lab test results using flow sheets; complete electronic and paper lab order forms.

CMA 153 - Human Diseases and Pharmacology (3)

This course provides instruction in the principles of pharmacology for medical assistants. Course content includes preparing and verifying proper dosages of

medication for administration, updating medication lists utilizing an electronic medical record system, using techniques to help explain medication treatment plans to patients to ensure patient understanding and compliance.

Offered: Fall, Spring.

Outcomes
Administer medications by various routes: IM, Sub-Q, ID, and Oral. Select proper sites for administration (excludes IV).
Prepare and administration of proper immunizations
Verify order doses/dosages prior to administering medications
Calculate proper dosages of medication for administration through applied mathematics.
Discuss cultural competence and how it effects patient care as it pertains to prescriptions, immunizations and childhood diseases.
Identify childhood and other diseases, as well as the immunization schedule

CMA 154 - Medical Assistant Practicum (6)

This course is a supervised medical assistant experience in a health care facility. The course provides students with the opportunity to apply knowledge and skill in performing administrative and clinical procedures and in developing professional attitudes for interacting with other healthcare professionals and consumers.

Offered: Winter, Summer.

Outcomes
Explore extern-ship sites and successfully complete 160 hours of hands-on experience utilizing newly acquired medical assistant administrative and clinical skills.
Function in a clinic, medical center, or other health care facility, practicing administrative and clinical medical office skills and responsibilities as observed by the instructor and/or preceptor.
Identify the purpose of a practicum and how the student benefits from the experience.
Model professionalism, integrity, dependability and initiative in the medical work environment while having positive interactions with other medical professionals.

CMA 155 - Medical Assistant Exam Review (2)

This course is a preparation to review the entire Medical Assisting program in preparation for the national Certified Medical Assistant examination.

Offered: Winter, Summer.

Outcomes
Examine different agencies that certify Medical Assistants through use of the Internet in group/class discussion.
Pass a mock CMA-AAMA exam in Canvas.
Recall knowledge in the administrative and clinical areas of Medical Assisting in order to successfully pass the AAMA exam.
Simulate the patient flow in a physician's office setting mock scenario.

CMA 156 - Job Readiness & Preparation (2)

This course focuses on preparation for an externship and job search by drafting resumes, cover letters and professional portfolios. Additionally, students will participate in mock interviews and understand the importance of networking.

Offered: Winter, Summer.

Outcomes
Differentiate chronological, functional and targeted resumes and successfully create their own
Discuss elements of Medical Assisting professionalism in a group setting.
Identify the benefits of networking
Identify the purpose and content of cover and thank you letters
Use effective ways to anticipate interviewer's questions

CMST Communications, Humanities/Social Sciences/Other

CMST& 102 - Introduction to Mass Media (5)

This course critically examines core issues in the relationship between media and society, including news and entertainment media in print, electronic and digital format. Through readings, viewings, research and discussion, we examine the historical, cultural, political and economic contexts of media industries, representations and audiences.

Distribution: General Education. Prerequisite: Placement or ENGL 091.

CMST 152 - Intercultural Communication (5)

This course is an introduction to the intercultural communication process and its importance in contemporary society. Students learn about the values and beliefs of a variety of cultures and develop skills to interact with people from those cultures. Emphasis is on acquiring an increased understanding of the relationship between culture and communication.

Distribution: General Education. Prerequisite: Placement or ENGL 091.

CMST& 210 - Interpersonal Communication (5)

This course explores the concepts and theories of interpersonal communication processes. You will be encouraged to practice, refine and adopt specific interpersonal communication skills that can increase your interpersonal communication competence and ability to form relationships with those from similar as well as different identity backgrounds.

Distribution: General Education. Prerequisite: Placement or ENGL 091.

CMST& 220 - Public Speaking (5)

Introduction to the rhetoric of speech and the preparation and delivery of speech in an extemporaneous style, including ethical research methods, basic rhetoric and critical analysis, and organization of various types of presentations. Two to four speaking assignments are required, plus regular quizzes, peer review and written examination. Online resources will be integrated.

Distribution: General Education.

CMST& 230 - Small Group Communications (5)

This course explores effective communication in small groups. Students examine aspects of group processes, including leadership, conflict management, decision-making, conformity and problem-solving.

Distribution: General Education. Prerequisite: Placement or ENGL 091.

CMST& 240 - Culture & Diversity in Health Care (5)

This course explores the role of culture in health care. Special attention will be given to the number of ways that culture both impedes as well as facilitates treatment. In order to achieve this, diverse approaches to healthcare will be introduced and students will be encouraged to examine their biases stemming from cultural influences. Ample opportunities will be given throughout the course to practice, refine, and adopt specific communication skills and strategies in order to work with patients from diverse cultural backgrounds.

Distribution: General Education. Prerequisite: ENGL 090.

CNCM-CNC Machinist

CNCM 113 - CNC Programming (4)

This course introduces the student to programming using standard EIA code (G and M codes). The student will produce new programs and edit existing programs manually (without CAD/CAM).

Distribution: Career Training. Offered: 2.

Outcomes
Describe how machines can be made to create most anything given the correct programming
Design, create, edit and use macros and sub-programs
Edit programs manually
Explain the programming language used to control machine motions
Load program into memory and edit all pertinent data
Use and apply suitable "G" and "M" codes

CNCM 114 - CNC Troubleshooting (3)

This course presents program and hardware problems to the student. Included are ATC (Automatic Tool Changer) problems program errors, coordinate system setting errors, power system failures, and how to recover from them.

Distribution: Career Training. Prerequisite: CNCM113. Offered: 3.

Outcomes
Coordinate system setting and tool setting errors
Correct program errors
Define common CNC machine faults and how to recover from them
Recover from ATC arm failures
Recover from power system failures

CNCM 126 - CNC Mill & Lathe Operations & Set-Up (5)

This class will be a combination and replacement of the former CNCM 110 CNC Mill 1 and CNCM 119 Lathe 1 classes. It will introduce students to use of CNC machines in manual mode. The class will introduce students to set up including tooling, fixturing and work coordinate systems. Students will learn to maintain, set up and operate CNC Machines safely. Continued introduction and exploration of the industry and employment opportunities.

Distribution: Career Training. Offered: 5.

Outcomes
Apply established safety practices.
Explain the different components which when bolted together make a conventional or CNC Machining Center.
Operate the CNC miling machine and lathe in manual mode.
Perform detailed preventative Maintenance tasks on CNC lathe and milling machine.
Interpret Safety Data Sheets (SDS) as they apply to machining fluids and materials.
Choose correct tool holders for each operation
Safely turn simple round parts in the engine lathe and CNC turning center used manually

CNCM 127 - Blueprint Reading & GD&T (5)

This class is deigned to introduce students to the interpretation of engineering drawings and Geometric Dimensioning and Tolerancing.

Distribution: Career Training. Offered: 5.

Outcomes
Calculate omitted dimensions of part details of engineering drawings.
Identify common blueprint symbology and drawing practices used in manufacturing.
Interpret blueprints views and orthographic projections.
Interpret thread specifications found on engineering drawings.
Calculate circular tolerance zones.
Interpret common feature control frame.
Calculate maximum and least material condition.
Memorize the common geometric dimensions and tolerancing symbols.

CNCM 203 - CNC Mill II (5)

Students set up and run the CNC Mill rom power on to shut down using programs they have written and tooling they have selected.

Distribution: Career Training. Prerequisite: CNCM113. Offered: 5.

Outcomes
Demonstrate machine setup, tool setting, loading of the program and machining of the part
Describe tool changers, tool storage, tool offsets, special tooling and fixturing
Use tools from a common cutter package

CNCM 211 - CNC Lathe II (5)

Students set up and run the CNC Lathe from power on to shut down using programs they have written and tooling they have selected.

Distribution: Career Training. Offered: 3.

Outcomes
Operate metal cutting lathes
Perform tooling operations
Set up metal cutting lathes
Use existing programs with the lathe

CNCM 215 - Computer-Aided Manufacturing (5)

Students use CAM (Computer Aided Manufacturing) software to draw and toolpath provided assignements starting with step by step instruction leading to application of learned concepts to complex programming challengesof their own.

Distribution: Career Training. Prerequisite: CNCM113. Offered: 4.

Outcomes
Interpret engineering drawings
Produce a "CNC Widget"
Use CAM software to program parts from engineering drawings
Write a manufacturing plan

CNCM 218 - Industry Technology (5)

This class will explore the various types of technology in industry that are used in Machining, and Manufacturing. Students will share information through discussions in class, and in Canvas. The information will be derived from several sources including the library. A written report will accompany the final presentation.

Prerequisite: none. Corequisite: none. Crosslisted as: none. Offered: Fall, Spring.

Outcomes
Students will be able to describe and explain the general process of various technologies.

CNCM-CNC Machinist

CNC 201 - CAD Fundamentals (5)

In this course, students learn foundational CAD skills such as data management, validation, drawing arts and tooling that are essential for CNC Programmers.

Offered: Winter, Spring, Summer, Fall.

CNC 202 - Design for Manufacturability (5)

In this course, students learn the skills to design for manufacturability. Skills that students learn during this course include: work-holding solutions for each manufacturing sequence, develop jigs to aid manufacturing process, establish 3D data sets for each work-holding sequence, create bill of materials lists, design custom cutting tools, create set-up documentation for work-holding, define stock size, describe work-holding instructions, describe stock loading instructions, create quality assurance fixtures and gauges, provide data for procurement departments, maintain the manufacturing process profitability. Students will learn to identify and publish stock size, identify program zero, create tool list documentation, and communicate instructions and manufacturing operations.

Offered: Winter, Spring, Summer, Fall.

CNC 203 - Manufacturing Process Related to Project Management (5)

In this course, students learn the skills to design for manufacturability. Skills that students learn during this course include: work-holding solutions for each manufacturing sequence, develop jigs to aid manufacturing process, establish 3D data sets for each work-holding sequence, create bill of materials lists, design custom cutting tools, create set-up documentation for work-holding, define stock size, describe work-holding instructions, describe stock loading instructions, create quality assurance fixtures and gauges, provide data for procurement departments, maintain the manufacturing process profitability. Students will learn to identify and publish stock size, identify program zero, create tool list documentation, and communicate instructions and manufacturing operations.

Offered: Winter, Spring, Summer, Fall.

CNC 301 - Basic Tool Path for Mill and Lathe (5)

In this course, students will use 2D and 3D CAD to create basic tool paths for both mills and lathes. They will be able to create and verify CNC code, develop set-up documentation, and verify manufacturing data meets current engineering revisions. Students will learn how to select the proper cutting tools and create basic tool paths. They will create tooling libraries and write operations for each machine tool motion that is needed. They will be able to technically write set-up documentation that includes, traceability, stock size, machine loading instructions, operations that need to be performed, and engineering revisions specific to the project. Lastly, they will learn theories about posting code and machine control definitions.

Offered: Winter, Spring, Summer, Fall.

CNC 302 - Multi-Axis/Indexing (5)

This course will enable students to be exposed to and create basic macro programs, sub programs, sub-routine programs and 3 + 12 axis programming. In this course, students will learn multi-axis CAM tool paths for mills and lathes and indexing. They will be able to create CNC code, verify CNC code, and develop set-up documentation for more advanced machines and projects. In this course, the students will understand the importance of verification and run through basic programs. This course will be more advanced and largely project based where students will be setting up their own program and checking for issues, and conforming to client specifications.

Offered: Winter, Spring, Summer, Fall.

CNC 303 - Advanced CNC Programming Techniques (5)

This course provides students with instruction and exposure in the setup and function of various advanced CNC machines and complex programming techniques used

in industry. Students will be taught how to choose the specific tooling for the job based on the complex material being used, and create tool list documentation procedures. They will calculate cycle times and record cycle times, to understand job scope. Students will proof-read code manually, and learn how to avoid crashing and collisions. They will learn how to find mistakes and edit the code, if the output is incorrect. Students will identify engineering traceability and then build and describe all the manufacturing operations that need to be performed to create a part. Lastly, students will understand high speed machining concepts and get current information on industry standards (e.g. ISO standards, NIST Standards).

Offered: Winter, Spring, Summer, Fall.

CNST-Cloud Computing Networking Technology

CNST 201 - Intro Cisco Internetwork (5)

The Cisco Networking Academy consists of four blocks. The course is an introduction to the skills and information needed to design, build, and maintain small to medium-size networks. Introducing the basic internetworking fundamentals.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Configure switches and end devices to provide access to local and remote network resources.
Explain how physical and data link layer protocols support the operation of Ethernet in switched network.
Configure routers to enable end-to-end connectivity between remote devices.
Create IPv4 and IPv6 addressing schemes and verify network connectivity between devices.
Explain how the upper layers of the OSI model support network applications.
Configure a small network with security best practices.
Troubleshoot connectivity in a small network.

CNST 202 - Cisco Routing Protocols and Concepts (5)

This is the second block of the Cisco Networking Academy. The course is designed to introduce students to the skills and information needed to design, build, and maintain small to medium-size networks. Students are introduced to routing theory and router technologies

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Configure VLANs and Inter-VLAN routing applying security best practices.
Troubleshoot inter-VLAN routing on Layer 3 devices.
Configure redundancy on a switched network using STP and EtherChannel.
Troubleshoot EtherChannel on switched networks.
Explain how to support available and reliable networks using dynamic addressing and first-hop redundancy protocols.
Configure dynamic address allocation in IPv6 networks.
Configure WLANs using a WLC and L2 security best practices.
Configure switch security to mitigate LAN attacks.
Configure IPv4 and IPv6 static routing on routers.

CNST 205 - Fundamentals of Linux (5)

This is an introductory course to the Linux environment including file system navigation, file permissions, command line interface, text editor, command shells, and basic network use. The versatility of Linux explored using a small platform computer.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Explain the basic differences between Linux and Windows operating systems.
Navigate the file system.
Change file permissions.
Create users.
Build a LAMP server.
Build a FTP server.
Write simple scripts.

CNST 207 - Server II (5)

Server operating systems are the foundation for computer network administration both locally and in the cloud. This course gives the learner an in-depth knowledge of Windows Server networking services including TCP/IP, DNS, DHCP, remote access and advanced networking solutions.

Distribution: Career Training. Prerequisite: CNST218. Offered: Fall, Spring.

Outcomes
Create Group Polices to workplace/lab standards
Explain Active Directory Certificate Services to 80% accuracy of industry standards
Identify the domain controller role to 80 % accuracy of industry standards
Understand and demonstrate user and service account configuration to 80% accuracy of industry standards

CNST 209 - Server III (5)

Server operating systems are the foundation for computer network administration both locally and in the cloud. This course gives the learner an in-depth knowledge of Windows Server identity-related services, including Active Directory, user and group accounts, Group Policy, Active Directory Certificate Services, and advanced identity solutions such as Active Directory Federation Services and Active Directory Rights Management Services.

Distribution: Career Training. Prerequisite: CNST207, CNST218. Offered: Winter, Summer.

Outcomes
Configure DNS Servers to industry standards
Configuring Distributed File System to 80 % accuracy of industry standards
Demonstrate Configuring of DHCP Servers with 80% accuracy or better of industry standards
Implement Remote Access to 80 % accuracy of industry standards

CNST 212 - Cisco LAN Switching and Wireless (5)

This is the third block of the Cisco Networking Academy. The course is designed to introduce students to the skills and information needed to design, build, and maintain small to medium-size networks. Students are introduced to advanced routing and switching

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Configure single-area OSPFv2 in both point-to-point and multiaccess networks.
Explain how to mitigate treats and enhance network security using access controls lists and security best practices.
Implement standard IPv4 ACLs to filter traffic and secure administrative access.
Configure NAT services on the edge router to provide IPv4 address scalability.
Explain techniques to provide address scalability and secure remote access for WANs.
Explain how to optimize, monitor, and troubleshoot scalable network architects.

CNST 213 - Cisco - Accessing the WAN (5)

This is the fourth block of the Cisco Networking Academy. The course is designed to introduce students to the skills and information needed to design, build, and maintain small to medium-size networks. Students will be introduced to the advanced Cisco networking utilizing project based learning

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe security threats facing modern network infrastructures.
Secure Cisco routers and switches.
Describe AAA functionalities and implement AAA on Cisco routers using router database and server-based ACS or ISE.
Mitigate threats to networks using ACLs and Stateful firewalls.
Implement IPS and IDS to secure networks against evolving attacks.
Mitigate threats to email, web based and endpoints attacks and common Layer 2 attacks.
Secure communications to ensure integrity, authentically and confidentiality.

CNST 214 - Cyber Security (5)

The Cybersecurity Essentials course covers foundational knowledge in all aspects of security in the cyber world, including information security, systems security, network security, mobile security, physical security, ethics and laws. It builds students' skills in related technologies, procedures, defense and mitigation techniques used in protecting businesses

Distribution: Career Training.

Outcomes
Explain encryption techniques and access control techniques with an 80% or better score to industry standards
Explain the principles of confidentiality, integrity, and availability as they relate to data states and cybersecurity countermeasures. With an 80%or better score to industry standards
Explain the types of malware, malicious code and social engineering, with an 80% or better score to industry standards
Name the technologies, products, and procedures used to provide high availability with an 80% or better score to industry standards
Understand cybersecurity domains and controls

CNST 216 - Scripting (5)

Scripting helps system administrators and power-users rapidly automate tasks that manage operating systems (Linux, macOS, and Windows) and processes. This course introduces the learner to scripting environments, techniques and troubleshooting. Emphasis is given to hands on practice.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate Implementation of PowerShell Remoting capabilities with in the workplace/lab environment
Demonstrate Using of PowerShell Integrated Script Environment (ISE), in a workplace/lab environment
Demonstrate writing scripts using the PowerShell object-oriented pipelinewithin the workplace/Lab environment
Identify the use of environment variables, with an 80%or better score
Recognize troubleshooting error handling concepts, terminating and non-terminating errors to an 80% or better score of industry standards

CNST 218 - Server I (5)

Server operating systems are the foundation for computer network administration both locally and in the cloud. This course gives you the skills you need to install and configure a Windows Server operating system along with storage and high availability solutions. These concepts can be applied in on-premise environments or in the cloud.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate Implementation of High Availability with Server Clustersto 80% or better accuracy
Demonstrate use of storage file systems to 80% or better accuracy.
Implement Virtualization with Hyper-V to industry standards.
Install Windows Server Operating System to Microsoft windows operating system standards.
Perform Server Backup to 80% accuracy or better

CNST 220 - Cloud Services (5)

This course covers the fundamentals of building IT infrastructure on the AWS platform. Students learn how to optimize the AWS Cloud by understanding how AWS services fit into cloud-based solutions. In addition, students explore AWS Cloud best practices and design patterns for architecting optimal IT solutions on AWS, and build a variety of infrastructures.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate Configuration of access control in the workplace/lab environment
Demonstrate data replication and redundancy with managed services in the workplace/Lab environment
Demonstrating of scaling and elastic load balancing with an 80% or better score
Implement cloud security best practices with an 80% or netter score
Plan and implement migration to the cloud With an 80% or better score

CNST 292 - Independent Projects (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen

Distribution: Career Training. Offered: Winter, Summer.

COLL-College Success

COLL 101 - College Success (5)

In this course, students engage in a comprehensive

approach to academic and personal success. Through collaborative exploration of college resources, effective communication, and consideration of diverse perspectives, students develop essential skills for success. Additionally, they delve into personal finance and career planning to discover pathways to career and personal goals. This course equips students to excel academically, navigate diverse professional settings, and foster inclusive communities.

Prerequisite: None. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify and describe how to use a variety of college resources, including online learning tools and campus support functions that support their academic journey, and create a personalized resource utilization plan.
Demonstrate strategies for achieving academic success, including time management, study techniques, and effective, inclusive communication with professors and peers, and compile a study techniques portfolio.
Exhibit effective professional and interpersonal communication competencies, both written and verbal, which are necessary for building positive, inclusive relationships within college and career communities, and create an inclusive communication plan.
Understand personal finance principles and demonstrate the ability to budget and to demonstrate informed and responsible financial decisions related to college and beyond, and create a personal financial management plan.
Engage in reflective writing and presentation to deepen their understanding of their chosen career path through research, goal setting, and create a career development plan.

CS-Software Development

CS& 141 - Computer Science 1 Java (5)

This is an advanced course for Visual Basic.NET, an object-oriented, event-driven language that is a subset of the Visual Studio.NET environment. It is designed to provide programmers familiar with the basic concepts and functionality of Visual Basic.NET with the tools to create more robust application programs.

Distribution: Career Training. Offered: Winter, Summer.

CTNA-Nursing Assistant Certified

CTNA 105 - Certified Nursing Assistant Program (10)

In this DOH approved course, the emphasis is on safety. Students learn patient care techniques, measures of well-being and how to work as part of a healthcare team. Students are tested on their understanding of skills and safety by written examination and skill demonstrations before their clinical experience with geriatric and medically fragile clients.

Prerequisite: 80 Level Reading, proof of completed MMR vaccine series OR positive titer, proof of completed Hepatitis B vaccine series OR positive titer OR started the series, 2 step TB test OR quantiferron gold test OR xray report indicating that lungs are free of disease. Proof of completed Varicella (chicken pox) vaccine series OR positve titer, Tdap vaccine in the last 10 years, Seasonal flu shot (fall and winter quarters only). Offered: Fall, Winter, Spring, Summer.

Outcomes

Demonstrate accurate verbal and written communication in a long-term care facility setting
Understand and explain Maslow's Hierarchy of Needs as it applies to planning and providing patient care
Understand the role and scope of a nursing assistant on a team within a healthcare setting
Understand the legal and ethical principals that guide nursing practice and maintain patient privacy and confidentiality in compliance with HIPAA laws
Provide emotional support and comfort patients and their families and understand the psychological and social aspects of patient care.
Collaborate effectively with other healthcare workers to ensure continuity of care and achieve positive patient outcomes
Demonstrate professional behaviors in the classroom as preparation for on the job professionalism and Identify how to find a job and be a great employee.
Compare and contrast rehabilitative and restorative care: exercise, devices & equipment, positioning & ROM, bowel & bladder retraining
Effectively assist clients with personal care in a long-term care facility setting
Explain why promoting patient rights, independence and self-care is important
Identify and demonstrate guidelines for assisting clients with activities of daily living (ADLs)
Have successfully completed training in First Aid/CPR, mental health, developmental disabilities, and dementia for Health Care Providers
Demonstrate mastery of the 22 skills tested by the Washington State Department of Health in the certification testing for Nursing Assistants
Explain and demonstrate basic nursing skills, including monitoring vital signs, use and non-use of restraints, bed-making techniques, reporting nutritional intake and output, feeding patients with various needs
Demonstrate knowledge of safety in regards to blood borne pathogens, HIV/AIDS, different types of isolation, PPE, standard precautions and medical asepsis
Recognize and report changes in patients' conditions to healthcare professionals and document patient care activities.
Demonstrate an understanding of individual patient needs based on their place in the human lifespan
Demonstrate safe, effective care of clients in a long-term care facility setting, including infection control and emergency procedures
Understand the major body systems, common diseases and disorders, and how these affect patient care

Describe common diseases and disorders of systems: musculoskeletal, nervous, circulatory, respiratory, urinary, gastrointestinal, endocrine, reproductive, immune/lymphatic
Discuss and demonstrate the importance self-care for employees

CYBR-Cybersecurity

CYBR 110 - Ethical Hacking Essentials (5)

Students gain essential insight into various information security attack vectors -- including password cracking, malware, social engineering, sniffing, web app attacks, and Structured Query Language (SQL) injection. Learn the basic methodologies in auditing information systems against these threats. Ethical Hacker Essentials Voucher included with coursework purchase.

CIP: 11.1003

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Describe common network vulnerabilities and threats in the industry.
Explain how network attack tools are used in the industry to search for and repair system vulnerabilities.
Analyze various attack vectors and learn methodologies to audit information systems against threats.
Research and present findings on current and future legal standing that affect the industry and profession.
Collaborate in groups to prepare for Industry certification.

CYBR 111 - Cybersecurity OS Fundamentals (4)

This course introduces the Linux Operating System and the fundamentals of Linux security. As proficiency increases, the incorporation of Kali Linux OS will be implemented. Students also learn the basic tools and features of Kali Linux.

CIP: 11.1003

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Install and configure appropriate authentication using a Linux operating system as to industry standard.
Configure audit capabilities and logs within a Linux operating system used in the industry.
Demonstrate file system and file management as used in the industry.
Investigate and report on Linux-based vulnerabilities and threats and proper risk mitigation techniques used in industry.
Review security log entries as an individual or in a group.

CYBR 201 - Information Security I (5)

Provides a foundation in network security including risk management, knowledge of laws, regulations, policies, and ethics as they relate to cybersecurity and privacy. Analyze and protect networks from malicious attacks and breaches of confidentiality. Identify attack and vulnerability types, and manage auditing and logging. This is the first course in a series of two to prepare for the CompTIA Security+ certification. Passing a professional IT certification requires many additional hours of study before and after the course lecture.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Configure firewall implementation and configuration to protect the network infrastructure as deployed in the industry
Demonstrate securing the browser and other applications as practiced in the industry
Describe honeypots and honeynets, and how to protect data from Data Loss Prevention (DLP)
Describe the fundamental concepts of confidentiality, integrity and availability as defined in the CIA triad
Discuss how and which secure network design implementation can protect network infrastructure for a business
Discuss implementation of security applications, securing computer hardware, peripherals and mobile devices in a relevant manner as a professional in the lab/classroom environment
Discuss solutions to known security issues in cloud computing as encountered in the industry
Identify threat factor types and attributes, malicious software types, delivery methods of malware, prevention and troubleshooting malware as practiced in the industry

CYBR 202 - Information Security II (5)

Continues building a foundation in network security. Learn theory and concepts, cryptography, encryption algorithms, communication and remote access, policy and incident response. This is the second course in a series of two to prepare for the CompTIA Security+ certification. Passing a professional IT certification requires many additional hours of study before and after the course lecture. Expect to spend a significant number of hours studying before you take a CompTIA or any other IT professional certification.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Define security protocols and their use in the industry
Demonstrate configuring rights, permissions, and policies by utilizing templates and groups to comply with confidentiality, integrity, and availability
Demonstrate use of industry standard tools to monitor systems and networks, conduct audits, and perform risk assessment practices assessing vulnerabilities as conducted in industry
Describe access control models such as MAC, DAC, RBAS, and ABAC, plus methodologies such as implicit deny and job rotation as used in the industry
Describe cryptography concepts, encryption algorithms, and hashing basics as implemented by industry standards
Discuss physical security and authentication models and components as to industry standard
Identify the importance of user education by applying methods and techniques to defeat social engineering attacks
Prepare for and successfully complete industry certification.

CYBR 205 - Mobile / Wireless Security (5)

Evaluate the security weaknesses of built-in and third-party applications. Learn about platform encryption and manipulate apps to circumvent client-side security techniques. Use mobile application analysis tools to identify deficiencies in mobile app network traffic, file system storage, and inter-app communication channels.

Distribution: Career Training. Prerequisite: CYBR108, CYBR201. Offered: Fall, Spring.

Outcomes
Compare and contrast mobile devices and their applications for security deficiencies
Demonstrate mobile device configuration to secure and protect the network infrastructure of a business
Identify wireless security updates, patches, and recognize security weaknesses
Recognize vulnerabilities and threats to mobile devices as used in the industry

CYBR 207 - Network Attack Mitigation / Defense (5)

Acquire mitigation and defense skills using adversarial tactics, techniques, and procedures. Focus is on firewall design and management, VPNs, Internet security, policies, and ongoing security management. Students are introduced to web security and hardening the network infrastructure. Students will learn how to develop and implement security and network management policies.

Distribution: Career Training. Prerequisite: CYBR203, CYBR204. Offered: Winter, Summer.

Outcomes
Analyze how security policies are implemented on systems to protect a network in the industry
Apply operating system hardening techniques for different platforms
Demonstrate implementation of network hardening techniques as used in the industry
Detect, identify, resolve and document host or network intrusions
Evaluate how network operational procedures relate to network security in the industry
Plan documentation of policies for operating system hardening processes as per best practices
Plan, write, and implement intrusion detection and management policies for host-based systems

CYBR 209 - Network Defense Essentials (5)

This course introduces computer and network security concepts such as network security controls, wireless network security, Internet of Things (IoT) Network Security, Cryptography, Network Traffic Monitoring, and more. It offers lecture and lab preparation for the EC-Council Network Defense Essentials (NDE) series certification. Students engage in cyber lab exercises to enhance the learning experience.

CIP: 11.1003

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Recognize vulnerabilities and threats to mobile devices as used in the industry.
Compare and contrast wireless/mobile devices and their applications for security deficiencies.
Identify wireless security updates, patches, and recognize security weaknesses.
Demonstrate mobile device, wireless, and cloud configurations to secure and protect the network infrastructure of a business.
Prepare for industry certification by utilizing cyber lab resources.

CYBR 210 - Intro to Python for Cybersecurity (4)

This course provides fundamentals and skills to use scripting for automation and administration of servers and network systems. It focuses on scripts commonly used in the cybersecurity field. It incorporates script testing and security as required by the profession.

CIP: 11.1003

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Configure the scripting environment and build skills with commands used in the industry.
Apply build-in scripts to automate administrative tasks for the local, remote, and mobile environments as used in the industry.
Schedule jobs and format output.
Create scripts to perform processing tasks as used in the industry.

CYBR 212 - Cybersecurity Analyst I (5)

This course is part 1 of 2 in a training set focused on the Computing Technology Industry Association (CompTIA) Cybersecurity Analyst (CySA+) certification. The curriculum focuses on Testout CyberDefense Pro+ certification and cyber lab hands-on work to train future cybersecurity professionals.

CIP: 11.1003

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Describe the key concepts in network defense (defense in depth, minimizing exposure, etc.) as applied in the industry.
Describe common network vulnerabilities in the industry.
Explain how network defense tools (firewalls, Intrusion Detection System (IDS), etc.) are used in the industry to defend against attacks and mitigate vulnerabilities.
Describe which cryptographic protocols, tools, and techniques are appropriate for a given situation.
Implement Access Control Lists (ACL) and secure communication channels between devices as per industry standards.

CYBR 213 - Cybersecurity Analyst II (5)

This course is part 2 of 2 in a training set focused on the Computing Technology Industry Association (CompTIA) Cybersecurity Analyst (CySA+) certification. The curriculum uses Testout CyberDefense Pro+ certification and cyber lab hands-on work to train future cybersecurity professionals.

CIP: 11.1003

Prerequisite: CYBR 212 Cybersecurity Analyst I, minimum grade of 2.0 or better. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Describe the key concepts in network defense (defense in depth, minimizing exposure, etc.) as applied in the industry.
Describe common network vulnerabilities in the industry.
Explain how network defense tools (firewalls, Intrusion Detection System (IDS), etc.) are used in the industry to defend against attacks and mitigate vulnerabilities.
Describe which cryptographic protocols, tools, and techniques are appropriate for a given situation.
Implement Access Control Lists (ACL) and secure communication channels between devices as per industry standards.

CYBR 214 - SQL Database Fundamentals (4)

This course focuses on database systems, design, and administration fundamentals. Students learn to perform data definition, manipulation, and queries using basic Structured Query Language (SQL). They learn the structure of data and database systems, their vulnerabilities to cyber-attacks, and the proper techniques required to protect these systems from damage.

CIP: 11.1003

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Define and identify database fundamentals as applied in the industry.
Demonstrate relational database practices by creating and manipulating the structure of data and database systems.
Apply basic Structured Query Language (SQL) statements to manipulate database data.
Demonstrate proper techniques to protect a database from security attacks as per industry best practices.

CYBR 290 - Independent Project (4)

This course allows participation in an independent study group to strengthen existing skills needed for certifications and workforce experience. Hands-on physical projects are highly encouraged.

CIP 11.1003

Prerequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Prepare for one or more industry certifications or work on a project approved by the instructor.
Work as a team to craft and present project findings.
Research and develop project scope and timeline utilizing industry standard tools and procedures.

CYBR 292 - Independent Project (5)

This course allows a student to participate in an independent study group to strengthen existing skills needed for certifications.

Distribution: Career Training. Prerequisite: Prior Coursework. Offered: Winter, Summer.

Outcomes
Prepare for one or more industry certifications or work on a project approved by your instructor

CYBR 294 - Independent Study (1-5)

This course offers students applied-learning opportunities to fulfill program learning outcomes and other programmatic requirements outside of the regular curriculum. Credit application toward a credential is subject to instructor approval.

CIP: 11.1003

Prerequisite: Instructor permission. Crosslisted as: N/A. Offered: Fall,Winter,Spring,Summer.

Outcomes
Instructor details relevant program and course learning outcomes for the successful completion of the course intent and toward credential completion.

DATA-Databse

DATA 101 - Database Design and SQL (5)

In this course, students will be using SQL Server Express, Vertebelos, and other data modeling tools, students recognize the concepts and theory of database management systems (DBMS), including the analysis and design of relational database systems, modeling business and scientific problems and normalizing relationships in tables

Distribution: Career Training. Offered: Winter, Summer.

DATA 102 - Advanced SQL (5)

This course provides a solid foundation of the SQL programming language that enables students to build, query and manipulate databases. Working in SQL Server database throughout this course, students compare the ANSI/ISO standard with the SQL implementation of this database product.

Distribution: Career Training. Prerequisite: DATA101. Offered: Fall, Spring.

DATA 104 - Excel for Analytics (5)

In this course, students will learn how to perform data analysis using Excel’s most popular features. You will learn how to create pivot tables from a range with rows and columns in Excel and see their ability to summarize data in flexible ways, enabling quick exploration of data and producing valuable insights from the accumulated data.

Distribution: Career Training. Offered: Winter, Summer.

DATA 205 - Business Data Analytics I - SQL Server Administration (5)

This course introduces the student to Database administration including database creation, maintenance, backup, recovery, and user account administration.

Distribution: Career Training. Prerequisite: DATA104. Offered: Winter, Summer.

DATA 206 - Business Data Analytics II- Intro to Business Intelligence (5)

This course focuses on how Business Intelligence is the application of software technologies that enables business users to make better and faster decisions based on enterprise data. In this course, you are introduced to Data Warehousing and creating Business Intelligence solutions. You learn how to build and integrate Microsoft tools into a comprehensive business solution in order to achieve competitive advantage

Distribution: Career Training. Prerequisite: DATA104. Offered: Fall, Spring.

DATA 207 - Business Data Analytics III - Visualization (5)

This course will introduce students to the field of data visualization. Students will learn basic visualization design and evaluation principles, and learn how to acquire, parse, and analyze large datasets. Students will also learn techniques for visualizing multivariate, temporal, text-based, geospatial, hierarchical, and network/graph-based data.

Distribution: Career Training. Offered: Fall, Spring.

DENLB-Dental Lab Technician

DENLB 101 - Introduction to Dental Lab Technology (2)

This course is an introduction to basic concepts of the dental laboratory industry: terminology, identification, weights and measures, health safety practices, and the use of dental tools/machinery.

Distribution: Career Training. Prerequisite: Must pass entrance requirement for program admittance. Offered: Fall, Spring.

Outcomes
Discuss the classroom rules, Hepatitis B vaccination, and attendance policy
Discuss various employment options and specialties in which dental laboratory technicians work
Identify and convert from the English system to the metric system
Identify and convert from the English system to the troy system
Identify tools and equipment in the dental laboratory
Use terminology associated with the dental profession

DENLB 102 - Dental Anatomy I (3)

This course is an introduction to tooth tissues and edentulous anatomy. The student will also learn tooth morphology and annotation.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Discuss Tooth Morphology
Identify anatomical landmarks of the mandible
Identify landmarks on edentulous impressions & models for denture construction
Interpret various methods of tooth annotation

DENLB 103 - Dental Materials I (3)

This course is an introduction to the various materials used in the first year of the dental laboratory program.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Compare and contrast different gypsum products such as plaster, dental stone and die stone.
Compare and contrast various resin materials used as denture base resin materials used in dentistry.
Discuss history of materials
Discuss how various impression materials should be used and handled in the dental laboratory
Identify and classify various dental waxes and their components

DENLB 104 - Denture Processes I (4)

This course is designed to provide students with an

introduction and practice in the first laboratory processes involved in denture construction. The student will evaluate preliminary and final edentulous impressions; construct custom trays, baseplates and occlusal rims.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply infection control procedures in a manner that fully complies with OSHA and WISHA requirements
Evaluate need and if required, apply wax relief
Evaluate preliminary and final impressions
Fabricate baseplates and bite rims
Fabricate custom trays using various materials
Identify the various types, movements and uses of articulators
Pour preliminary and final casts

DENLB 105 - Denture Processes II (4)

This course is an introduction to the articulation, tooth selection, and arrangement of denture teeth, Festooning through deflasking, selective grinding, and the fabrication of the students first complete denture.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Arrange maxillary and mandibular anatomic teeth on a semi-adjustable articulator
Festoon a denture
Fill flask with denture base material, process, deflask, selective grinding, finish and polishing
First Denture project
Flask or invest a denture for processing
Identify various tooth materials, shade, mold, and measurements
Remove all wax from the mold using a "boil-out" procedure

DENLB 106 - Dental Anatomy II (2)

This course is an introduction to the skeletal and muscular anatomy of the head and oral cavity. The student will also learn about the temporomandibular joint andhow it functions.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Identify the anatomy of the TMJ and the functions
Identify the bones of skeletal & facial anatomy
Identify the facial muscles and muscles of mastication

DENLB 107 - Denture Processes III (4)

This course introduces the student to the fabrication techniques of an immediate denture, denture repairs, relines rebases.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply immediate denture processing procedures.
Distinguish between different reline processes and apply the jig technique to reline a denture.
Distinguish between types of rebase processes and apply the flask heat cure technique to rebase a denture.
Evaluate and apply the proper techniques to repair a denture with broken or missing teeth and a fractured base.
Evaluate impression molds and pour casts, construct baseplates and bite rims avoiding remaining teeth
Identify and select tooth shape and shade and proceed with set-ups.

DENLB 108 - Denture Processes IV (3)

This course introduces the student to advanced concepts of esthetic tooth arrangement techniques that produce high quality dentures that enhance the age, sex, and personality of the individual patient.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply esthetic denture processing techniques
Apply positional relationships and interpretations to fabricate a life-like setup.
Describe and demonstrate positional relationships to harmonize age, sex, and personality
Describe the various keys to harmony
Through a written report determine shade, age, and personality interpretations

DENLB 110 - Introduction to Orthodontics (3)

This course is an introduction to the various classifications of mal-occlusion, the fundamentals of wire bending, soldering, and orthodontic study models.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply infection control procedures in a manner that fully complies with OSHA and WISHA standards
Describe and demonstrate wire bending concepts
Evaluate impression molds for defects and pour up models in hydrocal dental stone
Identify the various mal-occlusions using Angle's Classification of Mal-Occlusion
Interpret dentist's prescriptions for Orthodontic Appliances

DENLB 111 - Ortho Appliances - Fixed (3)

This course introduces the student to the fabrication of fixed orthodontic holding appliances that are temporarily cemented in the mouth by the dentist.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply infection control procedures in a manner that fully complies with OSHA and WISHA requirements
Apply the step- by- step technique in pouring and trimming diagnostic study models
Explain why various fixed appliances are prescribed and what they are intended to do
Using previously learned wire bending and soldering skill fabricate the Nance Button, Lingual Arch Wire, and Habit Appliances

DENLB 112 - Ortho Appliances - Removable (3)

This course introduces the student to the fabrication of removable orthodontic appliances that maintain tooth position and promote arch development. In addition the student will learn various repair techniques on these appliances.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply infection control procedures in a manner that fully complies with OSHA and WISHA requirements
Evaluate impressions for defects to be used for orthodontic study models and use the double pour technique using orthodontic stone for model fabrication
Explain why removable appliances might be preferable to fixed alternatives why various fixed appliances are prescribed and what they are intended to do
Using previously learned wire bending and cold cure acrylic processing skills, fabricate the Hawley and Saggital appliances

DENLB 120 - Removable Partial Dentures I (3)

This course is an introduction to removable partial dentures. The student will learn the various classifications, design theory, survey techniques, and components for removable partial denture construction. In addition, the student will learn digital scanning and design techniques

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply infection control procedures in a manner that fully complies with OSHA and WISHA requirements
Classify various edentulous conditions using the Kennedy-Applegate System
Demonstrate the step-by-step process to survey dental casts
Identify and accurately label surveyor parts and tools
Inspect impression molds for defects and pour up in hydrocal dental stone
Select partial denture design in a manner that considers the requirements for frameworks, denture base materials, and space for artificial teeth

DENLB 121 - Removable Partial Dentures II (3)

This course is the step by step process of preparing the master cast for partial denture construction. The student will learn model block out, duplication, refractory cast production, design transfer, wax up, and sprucing through finishing. The student will then fabricate a Class l RPD framework.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply techniques for selection and placement of preformed plastic patters and apply them to the refractory model
Apply techniques to connect elements of the partial pattern together using inlay wax in a manner that minimizes work in subsequent finishing and polishing steps
Apply the steps in spruing, investing, burnout, casting, and finishing framework
Evaluate refractory cast for defects
Prepare model for duplication
Use Agar Hydrocolloid process to duplicate model
Use drying oven to prepare refractory model for the cold resin dip

DENLB 122 - Removable Partial Dentures III (4)

The student will build on the knowledge gained in DENLB 120 and 121 by fabricating a metal lingual bar, Kennedy bar, palatal strap, and closed horseshoe removable partial denture framework.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply the techniques learned previously to fabricate a Horseshoe or Circle bar frame
Apply the techniques learned previously to fabricate a Kennedy Bar Frame
Apply the techniques learned previously to fabricate a Lingual Bar Frame
Apply the techniques learned previously to fabricate Palatal Strap Frame

DENLB 123 - Removable Partial Dentures IV (3)

In this course the student will set teeth on an upper and lower removable partial denture fabricated in DENLB 122. They will then process with an acrylic base and finish. In addition, the student will learn reline, repair, and rebase techniques for removable partial denture frameworks.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply the technique in relining a partial denture
Apply the technique of processing the partial denture
Apply the techniques in rebasing a partial denture
Apply the techniques in repairing a partial denture
Set teeth in the framework

DENLB 124 - Advanced Dentures (3)

In this course students will apply the theoretical knowledge and their experience with the step-by-step process of making an advanced denture using their basic learning skills.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Analyze the conditions for and construct a complete upper and lower denture using an alternate plane of occlusion
Apply previously learned skills in the complete and partial denture sections of the program to fabricate a complete denture opposing a removable partial denture or……
Fabricate an upper and lower complete denture using esthetic arrangement techniques and evaluate the proper conditions to process with Candular characterized esthetic acrylic or…..

DENLB 125 - Advanced Orthodontics (3)

In this course students will apply the theoretical knowledge and their experience with the step-by-step process of making an orthodontic appliance using their basic learning skills.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Analyze and apply the proper techniques to fabricate a Bionator or…
Identify the conditions that require a TMJ Splint and fabricate an upper or lower splint

DENLB 126 - Advanced RPDs (3)

In this course students will apply the theoretical knowledge and their experience with the step-by-step process of making an advanced Removable Partial Denture using their basic learning skills.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Compare and contrast the applications for a temporary removable partial denture (TPRD) using wrought wire clasps and the typical rigid chrome cobalt cast removable partial denture and fabricate a TRPD
Identify and evaluate the criteria for a mandibular labial bar (Swing Lock) partial and fabricate the framework using Swing Lock hardware or…
Recognize and evaluate the need for a single tooth pontic, facing, or tube tooth in a tooth borne partial and fabricate an upper or lower removable partial denture framework with this design concept or…

DENLB 201 - Tooth Morphology Practicum (5)

This course is designed to provide the student with a practical study of the individual teeth. Students will draw the individual teeth to scale from the linek manual. The student will also learn to build up tooth form with various colors of waxes to recognize how the anatomy of the natural tooth relates to each other and the overall form of the tooth.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Draw the various teeth to precise measurements using the Linek tooth carving manual
Identify the anatomical features with each tooth
Introduction to Computer Aided Design/Computer Aided Manufacturing
Visualize form in 3-dimension
Wax the central, incisal & occlusal 2/3 of the models using colored waxes
Wax the facial third of incisors & cuspids

DENLB 202 - Dental Materials II (2)

This course introduces the student to materials that are used in fixed restorations. Students will be introduced to the basics of chemistry by learning about metallurgy and their chemical and physical properties. Additionally, the student will gain an understanding of weights, measures, and calculations, processing of alloys, metal treatment and torch techniques as well as metal sensitivities. The student will then be introduced to porcelain, its chemical composition, properties, application, and manufacturing.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe the different extraction methods of metals
Describe the manufacturing process of porcelain
Distinguish the difference between an atom, molecule, substance and compound
Identify between the various bonds ie… covalent, ionic, metallic, and Van der Waals
Identify the chemical & physical properties of metals & alloys including the types of bonds
Identify the classifications of alloy systems
Recognize which metals are used for laboratory applications
Understand the chemical and physical properties of metals & alloys
Understand the composition, chemical and physical properties of porcelains

DENLB 203 - Fixed Prosthodontics I (5)

This course introduces the student to the theory and practice of fabricating individual metal crowns. The student will learn the steps involved in fabricating gold inlays, onlays, crowns.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate the procedures for model and die preparation using the pindex
Describe and draw parallelism on preps for crowns and bridges
Describe the principles and methods of preventing disease transmission and cross contamination during the fabrication of a metal prosthesis
Distinguish between a good or bad impression
Follow the procedures for waxing, spruing, investing, burnout, casting, finishing & polishing
Identify different prep forms
Identify various margin preps, their advantages, disadvantages and the types of restoration that require them
Trim margins & mark dies

DENLB 204 - Principles of Occlusion (2)

This course is designed to provide the student with an introduction to the principles of occlusion, including the anatomical structures of the oral cavity, the determinants of occlusal morphology, misaligned teeth versus ideal teeth and the physiology of mandibular movements as they relate to the fabrication of dental restorations.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Discuss cusp to fossa vs. cusp to embrasure
Discuss mutual protection vs. cuspal protection (cuspid rise)
Discuss the interrelationship of morphologic and functional occlusion
Discuss unilateral balancing vs. full balancing occlusion
Understand centric occlusion and centric related occlusion
Understand eccentric occlusion
Understand the primary and secondary determinants of occlusion

DENLB 205 - Fixed Prosthodontics II (5)

This course is designed to provide the step-by-step procedures in fabricating metal bridges, post-soldering, fabricating provisionals, fabrication of reduction copings.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Continue to follow the procedures for waxing, spruing, investing, burnout, casting, finishing & polishing
Follow the procedures for post-soldering
Follow the steps in fabricating provisionals
Understand and follow the steps in fabricating a reduction coping

DENLB 206 - Ceramics I (2)

An introduction to the theory and practice of fabricating fixed porcelain prosthesis. The student will learn about the history of ceramics with old technologies as well as new technologies such as layering a Zirconia coping, Emax, and titanium copings. The student will fabricate modelwork for their ceramic units.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Articulate one full arch case on a semi-adjustable articulator
Describe the principles and methods of preventing disease transmission and cross contamination during the fabrication of a metal prosthesis
Distinguish between a good or bad impression
Distinguish between a variety of porcelains and their uses
Follow the procedures for model and die preparation using the pindex
Trim & mark margins

DENLB 207 - Understructure Design (5)

This course is an introduction to the understructure design for porcelain fused to metal crowns, waxing, and porcelain margin cut back, investing, finishing the alloy for preparation for porcelain.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Cut back wax for porcelain margins
Finish metal to prepare for porcelain
Follow the procedures for spruing, investing, burn-out and casting
Read the prescription for the case
Wax understructure individual copings and bridges

DENLB 208 - Ethics, Jurisprudence and Laboratory Management (3)

This course is designed to provide the student with the history of the dental profession, the legal obligations of the dental technician under State Dental Practice Acts, ethical responsibilities of the technician towards the dental profession, and the fundamentals of the day to day operation of a dental laboratory.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Differentiate between self-employed & corporation
Discuss history, ethics, and jurisprudence
Discuss various employment options and specialties in which dental laboratory technicians work
Understand ethical responsibilities towards the dental profession
Understand the fundamentals of laboratory operations
Write a report & design a laboratory

DENLB 209 - Ceramics II (5)

This course will assist the student in following the step by step processes in the application of porcelain to metal understructure. The student will also learn about color in dentistry and taking shades.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Applying opaque, porcelain margin porcelain, body & incisal porcelain
Applying stain intrinsically or extrinsically/glazing
Contouring shape
De-gassing
Read a prescription
Understand shade taking by eye or photo

DENLB 211 - Ceramics III (4)

This course will assist the student in following the step by step processes in the fabrication of Emax pressable porcelain crowns veneers.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe the principles and methods of preventing disease transmission and cross contamination during the fabrication of a metal prosthesis
Differentiate between press & layer and press & stain
Distinguish between a good or bad impression
Follow the procedures for model and die preparation using the pindex
Read a prescription
Trim & mark margins
Wax, invest, burnout, and press

DENLB 212 - Computer Aided Design/Computer Aided Manufacturing (5)

This course is an introduction to the theory and practice of fabricating dental prosthetics digitally with an understanding of the various systems available as it pertains to open and closed architecture. Students will also learn a general understanding about material selection for the final prostheses. They will gain an understanding by digitally manipulating and morphing teeth, importing and exporting stl. digital files, nesting and computer aided manufacturing of digital design fabrications. The student will by computer aided design and manufacturing of individual copings and full wax units.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Create a work order digitally
Describe the process of CAD/CAM
Design units
Manipulate digitally the shape, form and function of individual units
Scan the working dental model

DENLB 213 - Advanced Technologies (4)

In this course students will apply the theoretical knowledge and their experience with the step-by-step process of an advanced project using two of their basic learning skills.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Digitally scan and design a coping in Zirconia and layer it with porcelain
Fabricate a 3 unit bridge post soldering two porcelain units and one gold crown
Fabricate a crown under a partial
Fabricate a Hader bar with a snap on denture
Fabricate a partial over a new crown

DENLB 214 - Advanced Crown and Bridge (3)

In thiscourse students will apply the theoretical knowledge and their experience with the step-by-step process of an advanced project using their basic learning skills.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Fabricate 4 individual gold crowns
Fabricate 4 unit bridge incorporating 2 PFM's and 2 gold crowns post-soldered
Fabricate 4 unit gold bridge
Fabricate a 3 unit gold bridge with a semi-precision attachment

DENLB 215 - Advanced Dental Ceramics (3)

In this course students will apply the theoretical knowledge and their experience with the step-by-step process of an advanced project using two their basic learning skills.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Fabricate a 3 unit ceramic bridge with a semi-precision attachment
Press 6 anterior veneers
Press and layer 4 to 6 anterior units
Press and stain 3 or 4 inlay/onlay units
Press and stain two posterior units side by side

DENLB 291 - Practical Applications (4)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: 8.

Outcomes
Outcomes may vary depending upon the student work-based learning site and subject matter

DENLB 292 - Independent Projects (4)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: 8.

Outcomes
Outcomes may vary depending upon the student work-based learning site and subject matter

DENLB 293 - Independent Projects (4)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: 8.

Outcomes
Outcomes may vary depending upon the student work-based learning site and subject matter

DENLB 294 - Independent Projects (4)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: 8.

Outcomes
Outcomes may vary depending upon the student work-based learning site and subject matter

DENLB 296 - Work-based Learning Seminar (1)

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Outcomes may vary depending upon the student work-based learning site and subject matter

DENLB 297 - Work-based Learning Experience (3)

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meets with the students to provide support and assistance during the experience.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Outcomes may vary depending upon the student work-based learning site and subject matter

DENLB 298 - Work-based Learning Experience no Seminar (3)

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meets with the students to provide support and assistance during the experience.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Outcomes may vary depending upon the student work-based learning site and subject matter

DIESL-Diesel Heavy Equipment Technology

DIESL 100 - Basic Electrical Systems (5)

The course is an introduction to the fundamentals of electricity and its application in the diesel and heavy equipment industry. The uses of specialty equipment to troubleshoot and repair are included with emphasis on industry safety requirements and the use of protective devices. Concurrent enrollment: DIESL 112, DIESL 113, DIESL 114 or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Summer.

Outcomes
Apply safety concepts while using electrical basics to evaluate needed actions.
Identify electrical system components and their purpose within the system.
Use industry recognized processes to troubleshoot electrical systems and components

DIESL 105 - Introduction to Diesel Technology (1)

This course is an introduction to the diesel industry with emphasis on occupational safety principles and WISHA and Department of Ecology guidelines. Concurrent enrollment: DIESL 106, 107, 108, or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Demonstrate WISHA and Department of Ecology Safety requirements per industry standards
Discuss WISHA and Department of Ecology safety laws

DIESL 106 - Engine Construction (5)

This course is an introduction to basic engine theory and operation and their application to the maintenance and repair of gasoline and diesel engine systems common to heavy equipment. Concurrent enrollment: DIESL 105, 107, 108 or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Identify sub components that will determine the application of the engine
Identify the different engine construction and designs of operation
Identify, inspect and test components that are used on the engines
Utilize the information to determine required procedures

DIESL 107 - Engine Systems (1)

This course is a continuation of the concepts introduced in DIESL 106, students learn to identify engine systems and their component parts. Concurrent enrollment: DIESL 105, 106, 108, or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Identify engine components used in the engine, and determine if component is serviceable

DIESL 108 - Engine Reassembly (4)

In this course perform procedures for overhauling heavy-

duty diesel engine including disassembly, cleaning and inspection, adjustments, and reassembly. Concurrent enrollment: DIESL 105, 106, 107, or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Demonstrate proper cleaning, storage, and maintenance of tools and equipment per industry standards.
Discuss safe handling and use of appropriate tools per industry standards
Evaluate and inspect and adjust components in preparation for reassembly
Follow service literature to properly dismantle a diesel engine
Reassemble a diesel engine following service literature returning it to running condition
Use industry specifications to clean and evaluate components to ensure serviceability

DIESL 109 - Fuel Systems (2)

This course is focused on the operating principles of pneumatic brakes including ABS, roll stability, and collision avoidance are presented. Concurrent enrollment: DIESL 104, 105, 106, 107, 108 or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Spring.

Outcomes
Apply proper cleaning, storage, and maintenance of tools and equipment per industry standards.
Identify fuel system components and their proper function
Use industry processes to diagnose and repair fuel systems

DIESL 110 - Introduction to Air Brakes (2)

This course introduces the operating principles of pneumatic brakes, which includes: ABS, Roll stability, and collision avoidance. Concurrent enrollment: DIESL 104, 105, 106, 107, 108, and 109 or instructor permission

Offered: Fall, Winter, Spring.

Outcomes
Demonstrate proper cleaning, storage, and maintenance of tools and equipment per industry standards.
Discuss poor stopping, air leaks, premature wear, pulling, grabbing, dragging, or balance problems caused by supply and service systems malfunctions; determine needed action per industry standards
Identify the brake system components, their design for various applications and proper operation
Inspect, diagnose and adjust to ensure their proper operation

DIESL 112 - Electrical Systems Application (4)

This course is focused on the practical applications include working with cranking circuits, type A & B charging circuits, conventional and electronic spark ignition, component operation, testing and industry-required repairs. Concurrent enrollment: DIESL 100, 113, 114 or instructor permission

Distribution: Career Training. Offered: Fall, Winter, Summer.

Outcomes
Evaluate the proper component operation of cranking systems, charging systems, and ignition systems.
Identify applications of cranking circuits, type A & B charging circuits, and spark ignition.
Perform industry acceptable maintenance, testing and repairs

DIESL 113 - Electronic Engine Systems (3)

This course introduces testing of common input and output electronic components and to use specialty tools and equipment used for code retrieval; service processes and repair are introduced. Concurrent enrollment: DIESL 100, 112, 114 or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Summer.

Outcomes
Discuss testing of common input and output electronic components
Use specialty tools and equipment used for code retrieval; service processes and repair to industry standards

DIESL 114 - Mobile Air Conditioning Systems (3)

This course introduces the EPA 609 requirements with emphasis on the achievement of certification. Component identification, operation, testing, and repair methods to meet industry regulations are included. Concurrent enrollment: DIESL 100, 112, 113, or instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Summer.

Outcomes
Discuss the EPA 609 requirements with emphasis on the achievement of certification to industry standards
Identify the operation, testing, and repair methods to meet industry regulations are included.

DIESL 115 - Introduction to Power Trains (1)

This course is an introduction to the Power Trains Program. Emphasis is given to shop and tool safety, and the fundamentals of precision measurements and fasteners. Concurrent enrollment: DIESL 115, 117, 118, 119, 120, 121, 122, 123 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Demonstrate proper use of fine measuring tool
Demonstrate the ability to work safely in the lab and in industry
Develop proper hand tool selection, care and use habits
Follow appropriate safety procedures while using hand and stationary power tools
Practice safe overhead lifting

DIESL 117 - Automated Manual Transmission Service (2)

This course introduces the design characteristics, operation and basic troubleshooting of automated manual transmissions. Concurrent enrollment: Concurrent enrollment: DIESL 115, 117, 118, 119, 120, 121, 122, 123 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Identify components specific to manual transmission and their functions per industry standards.
Inspect and test operation of electronic shift control to industry standards

DIESL 118 - Clutch Service (2)

This course focuses on the fundamentals of medium and heavy duty clutch operation, diagnosis of various symptoms and causes of clutch failures and provide remedies to prevent future failures. Concurrent enrollment: DIESL 115, 117, 119, 120, 121, 122, 123 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Identify and explain the various components and functions in a variety of designs
Remove, install, adjust, and test proper clutch operation

DIESL 119 - Automatic Transmission Service (2)

The course focuses on the fundamental understanding of automatic and power shift transmissions and torque converters including the basics of operation, design characteristics and failure analysis of both hydro-mechanical and electronically controlled units. Concurrent enrollment: DIESL 115, 117, 118, 120, 121, 122, 123 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Identify, inspect and explain various design differences and operation
Inspect components and identify design change of different manufacturers.

DIESL 120 - Driveline Service (1)

This course focuses on the fundamental understanding of the principles of operation, maintenance procedures, and analysis of vibrations for driveline systems. Concurrent enrollment: DIESL115, 117, 118, 119, 121, 122, 123 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring,

Summer.

Outcomes
Describe how to measure driveline inclination characteristics
Identify component condition, function, and operation

DIESL 121 - Differentials/Final Drive (2)

This course focuses on the fundamental differential/final drive system service including disassembly, failure analysis, and reassembly to O.E.M. specifications, . The various styles, applications, and operation of mechanical final drives used in construction and agricultural equipment are also included. Concurrent enrollment: DIESL: 115, 117, 118, 119, 120, 122, 123 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Disassemble, inspect, evaluate and properly reassemble differential
Identify different designs, component functions and operating characteristics

DIESL 122 - Wheel End Service (1)

This course focuses on the correct inspection and installation procedures for standard and unitized wheel ends used on heavy duty trucks. Concurrent enrollment: DIESL 115, 117, 118, 119, 120, 121, 122, 123 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Properly remove and install wheel ends assemblies while meeting safety requirements

DIESL 123 - Service Manual Transmissions (4)

This course focuses on the fundamental transmission service on single and twin countershaft transmissions including disassembly, failure analysis, preventive remedies, and reassembly to OEM specifications. Concurrent enrollment: DIESL 115, 117, 118, 119, 120, 121, 122 or instructor permission.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Identify various designs of manual transmissions, construction and operation
Reassemble transmission to a working condition
Use specialty tools to disassemble then inspect and evaluate component condition.

DIESL 130 - Basic Hydraulics (5)

This course is an introduction to hydraulic/pneumatic theory, component design, and service practices for hydraulic systems. This includes instruction in pumps, motors, valves, safety, seals, cylinders, and filters. Instruction is facilitated by use of simulations. Co-requisite courses 131, 132 and 133 or instructor permission

Distribution: Career Training. Offered: Winter, Spring, Summer.

Outcomes
Describe the functions of the components used in mobile hydraulics
Identify the different designs of mobile hydraulic component
Use hydraulic schematics to identify system components and their locations in the system.
Test, inspect, remove, repair and or replace components suspected of improper operation.

DIESL 131 - Hydraulics II (5)

In this course diagnose and test a variety of hydraulic components and systems. To develop and refine skills in the repair and maintenance of hydraulic systems in truck ad heavy equipment. Instruction is enhanced through use of simulation. Co-requisite courses 130, 132 and 133 or instructor permission

Distribution: Career Training. Offered: Winter, Spring, Summer.

Outcomes
Apply their understanding of the operation and function of mobile and heavy equipment hydraulics systems.
Use appropriate test equipment to inspect, and troubleshoot diesel and heavy equipment hydraulic systems.
Service, repair and replace hydraulic system components.

DIESL 132 - Steering Systems (3)

This course focuses on the role and operation of steering system components in trucks and heavy equipment and their relationship to brake and suspension systems. Students develop and refine skills in the repair and maintenance of steering systems. The major emphasis will be inspection and repair methods for steering system components. Co-requisite courses 130, 131 and 133 or instructor permission

Distribution: Career Training. Offered: Winter, Spring, Summer.

Outcomes
Identify the components of steering systems and their function.
Describe the relationship of steering systems to other systems in trucks and heavy equipment.
Inspect and troubleshoot diesel and heavy equipment steering systems.
Perform a service, repair and replace steering system components.

DIESL 133 - Suspension Systems (2)

This course focuses on the role and operation of suspension system components in trucks and heavy equipment and their relationship to brake and steering systems. Students develop and refine skills in the repair and maintenance of suspension systems. The major emphasis will be inspection and repair methods for suspension system components. Co-requisite courses 130, 131 and 132 or instructor permission

Distribution: Career Training. Offered: Winter, Spring, Summer.

Outcomes
Identify the components of suspension systems and their function
Inspect, test, service, replace, batteries, cranking motors and controls
Inspect and troubleshoot diesel and heavy equipment suspension systems.
Service, repair and replace suspension system components.

DIESL 154 - Intro to Air Brakes (5)

In this course, instruction will begin with the basic theory, construction and operation of an air brake system typically found on a heavy duty truck. Additional emphasis will be on diagnostic and troubleshooting, as well as service and repair routines. Additional instruction will include basic ABS/EBS braking systems, and related control systems.

Prerequisite: None. Corequisite: Basic Vehicle Service, Advanced Services Applications/ or instructor permission. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify components commonly found in a typical heavy duty truck air brake system and understand how each component contributes to the operation of the system.
Inspect an air brake system and perform an operational check to determine functionality, both mechanically and pneumatically
Perform basic inspections of shoes/pads, drums/discs and related foundation components used in drum and disc brake systems
Perform basic service and maintenance routines on a typical drum/disc air brake system.
Identify the components found in a typical ABS system and understand how each component contributes to the operation of the system.
Perform basic inspections of ABS components to determine functionality

DIESL 155 - Basic Vehicle Services (8)

In this course, emphasis is on theory and shop practices required to maintain, troubleshoot, and repair equipment encountered in the industry. To follow and apply proper procedures and standards to perform A-B-C, inspections, Preventive Maintenance Inspections (PMI) and Department of Transportation (DOT) inspections. Co-requisite DIESL 206 or instructor permission

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply the use of industry service information ensuring proper service procedures are adhered to industry standards
Demonstrate A-B-C, PMI, and DOT inspections to industry standards
Describe the criteria for deadlining or out of service (OOS) tagging a vehicle.
Determine the requirements of shops involved with basic vehicle and equipment servicing
Diagnosing diesel and heavy equipment by preforming as a professional in reviewing college shop jobs, which provide real world experiences per industry standards. This is to include organizing inventory of parts/supplies and cost for repairs, and mainte
Effectively communicate turnover of a repair in process in a shop to continue repairs to the next technician during shift turnover.
Perform diagnosis and repair on a variety of equipment independently or as part of a team requiring awareness of cost and time restraints
Perform safely and effectively in the shop environment independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community
Use proper hand tools and equipment in the shop environment in a safe manner

DIESL 156 - Basic Vehicle Service (5)

In this course, emphasis is on theory and shop practices required to maintain, troubleshoot and repair equipment encountered in the industry. To follow and apply proper procedures and standards to perform

A-B-C inspections, preventive maintenance inspections (PMI) and Department of Transportation (DOT) inspections.

Prerequisite: none. Corequisite: Advanced Service Applications, Intro to Air Brakes. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply the use of industry service information ensuring proper service procedures are adhered to industry standards
Determine the requirements of shops involved with basic vehicle and equipment servicing.
Perform safely and effectively in the shop environment independently as well as cooperatively to develop an awareness and sense of responsibility to the larger community.
Use proper hand tools and equipment in the shop environment in a safe manner
Describe the criteria for dead-lining or out of service (OOS) tagging a vehicle.
Diagnosing diesel and heavy equipment by performing as a professional in reviewing college shop jobs, which provide real world experiences per industry standards. This is to include organizing inventory of parts/supplies and cost for repairs and maintenance.
Effectively communicate turnover of a repair in process in a shop to the next technician during shift turnover.
Demonstrate A-B-C, PMI and DOT inspections to industry standards.
Perform diagnosis and repair on a variety of equipment independently or as part of a team requiring awareness of cost and/or time restraints.

DIESL 206 - Advanced Service Applications (7)

This course is an application of gained knowledge of various systems, the relationship between systems, their components, and the procedures for providing service to engines and fuel systems, power trains, hydraulic systems, electrical systems, air conditioning and refrigeration systems, and the procedures for performing periodic maintenance. Co-requisite DIESL 206 or instructor permission

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply knowledge and skills learned through theory/guided practice to service, troubleshoot, and repair engine accessories
Complete work order to include customer information, vehicle identifying information, related service history, to follow up on the 3 C's in customer service; concern, cause, and correction.
Demonstrates effective oral and written communication with customers and as a team member.
Differentiate engine designs, inspect, service, troubleshoot and repair as required to maintain proper operation
Perform A-B-C, PMI, and DOT inspections to industry standards

DIESL 207 - Advanced Service Applications (5)

This course is an application of gained knowledge of various systems, the relationship between systems, their components, and the procedures for providing service to engines and fuel systems, power trains, hydraulic systems, electrical systems, air conditioning and refrigeration systems, and the procedures for performing periodic maintenance.

Prerequisite: None. Corequisite: Basic Vehicle Service, Intro to Air Brakes. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply knowledge and skills learned through theory/guided practice to service, troubleshoot and repair engine accessories
Differentiate engine designs, inspect, service, troubleshoot and repair as required to maintain proper operation
Demonstrate effective oral and written communication with customers and as a team member
Complete work order to include customer information, vehicle identifying information, related service history, to follow up on the 3 C’s in customer service: concern, cause and correction
Perform A-B-C, PMI and DOT inspections to industry standards

DIESL 208 - Advanced Service Techniques (7)

This course focuses on applying and demonstrating skills and capabilities to inspect (troubleshoot, analyze/diagnose, test), remove, and repair or replace components or systems within manufacturer's specifications. Service and preventive maintenance techniques are applied to the following systems: engines and fuel systems, power trains, hydraulic systems, electrical systems, air conditioning, and refrigeration systems.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Perform a full electrical systems diagnostics
Perform a full engine systems diagnostics
Perform a full HVAC systems diagnostics
Perform a full hydraulics system diagnostics
Perform a full powertrain systems diagnostics
Perform as a respectful team member, in a diverse workplace environment.
Using effective oral/written communication by summarizing the diagnostics result/s, providing recommendation/s of maintenance or repair to a customer in a non-technical manner.
Construct a recommendation for maintenance or repair as a result of a diagnostics concern/cause per industry standards
Correct the brake systems causes for concern to industry standards
Correct the electrical systems causes for concern to industry standards.
Correct the engine systems causes for concern to industry standards.
Correct the HVAC systems causes for concern to industry standards.
Correct the hydraulics systems causes for concern to industry standards
Correct the powertrain systems causes for concern to industry standards.
Perform a full Brakes Systems diagnostics

DIESL 291 - Practical Applications (1-13)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. Instructor permission

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

DIESL 296 - Work-based Learning Experience (1 to 13)

This course is Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a

variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

Distribution: Career Training. Prerequisite: All 100-level DIESL courses & DIESL 206. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Analyze and resolve problems that arise in completing assigned tasks.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.

DIGIT-Digital Media

DIGIT 102 - Image Editing (5)

In this course, students will explore the composition method using Photoshop along with technical information to enhance, alter and transform photographic images.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Define the layers and treatments
Define/identify digital imaging terminology
Define/Identify values, color and depth
Definite/Identify file formats and uses and resolution

DIGIT 103 - Graphic Generation (5)

In this course, students will explore the fundamentals of graphic design using a graphic generation application along with technical information to create vector imagery.

Distribution: Career Training. Offered: Fall.

Outcomes
Define the layers and treatments
Define/Identify file formats and uses and resolution
Define/Identify Typography
Definite/identify digital imaging terminology

DIGIT 105 - Digital Imaging (5)

In this course, students will explore the composition method in photography along with the technical information required to use a DSLR camera to its full potential.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Define the exposure triangle
Define/identify digital imaging terminology
Define/Identify pixels and resolution
Define/Identify the lens and their contribution to composition

DIGIT 121 - Production Process I (5)

This course examines the framework for pre-production processes for digital media. Students learn to plan media productions and create scripts for various media. Emphasis is place on the requirements of the planning stage, from logistics to regulations.

Distribution: Career Training. Offered: Winter.

Outcomes
Apply Camera, light and audio process
Define/ Identify pre-Production terminology and jargon
Define/Identify primary steps in pre-production process
Define/Identify/Apply pre-production documents

DIGIT 126 - Production Process II (5)

This course focuses on production process using the common tools found in studio, on field ENG's, and Narrative film style productions

Distribution: Career Training. Offered: Winter.

Outcomes
Apply basic shooting techniques
Define/Identify production terminology and jargon
Define/Identify shooting patterns and meanings
Define/Identify/apply file protocol

DIGIT 127 - Production Process III (5)

This course focuses on post-production process using the common tools found in a digital editing environment

Distribution: Career Training. Offered: Winter.

Outcomes
Apply design editing patterns and meanings
Apply storytelling cutting techniques
Define/Identify non-linear editing process
Define/Identify/apply file protocol

DIGIT 130 - Production Editing I (3)

This course focuses on the post-production editing process using the common processes found in a digital editing environment

Distribution: Career Training. Offered: Spring.

Outcomes
Apply design editing patterns and meanings
Apply storytelling cutting techniques
Define/Identify non-linear editing process
Define/Identify/apply file protocol

DIGIT 131 - Production Editing II (3)

In this course, students will dive deeper into post-production editing process using the common tools found in a digital editing environment

Distribution: Career Training. Offered: Spring.

Outcomes
Apply design editing patterns and meanings
Apply storytelling cutting techniques
Define/Identify non-liner editing process
Define/Identify/apply file protocol

DIGIT 132 - Digital Media - Video (5)

In the digital media-video course, students will explore the technology, language and engineering that supports the creative process.

Distribution: Career Training. Offered: Spring.

Outcomes
Apply compression techniques
Define/Identify CODEC compression types
Define/Identify computer terminology related to digital media content creation, encode/decoded/trans-code process, and storage
Define/identify/apply file protocol and labeling

DIGIT 141 - Compositing I (5)

This course focuses on the foundation of the composition method using a graphics and animation program.

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Create and animate basic elements
Define/Identify good composition
Define/Identify grouping and meaning
Define/identify the principles of composition

DIGIT 142 - Compositing II (5)

In this course, students will explore the gathering process for the composition method using graphic design programs, cameras, scanners, cell phones and tablets

Distribution: Career Training. Offered: Summer.

Outcomes
Create elements for a composition
Define/identify elements and their contribution to the message
Define/identify styles in elements
Define/identify the principles of composition

DIGIT 143 - Digital Media - Animation (5)

In this course, students will explore 2 dimensional animations, looking at composition, geometric imagery and physical action

Distribution: Career Training. Offered: Fall, Spring, Summer.

Outcomes
Create blocking using key frames
Define/identify the principles of animation
Define/Identify tools and operation
Identify effect techniques and resources for recipes

DIGIT 146 - Audio Concepts (3)

Audio is 51% of the picture in Digital Media. In this course students will learn audio work flows with hands on learning with analogue and digital hardware. The course will cover microphones, hardware audio preamps, compressors and EQ. The students will record audio sources and process the audio files into two track mix masters using a variety of audio programs and audio plugins. The students will record and mix there own production to prepare them for entry level jobs in digital media.

Prerequisite: na. Corequisite: na. Crosslisted as: na. Offered: Fall, Winter, Spring.

Outcomes
Define the types of microphones and be able to describe their uses in a practical production project.
Process multiple audio sources through an audio channel strip pathway using the pre amp, EQ and compressor to achieve audio level without distortion or clipping with appropriate frequencies.
Assemble multiple audio sources into a cohesive audio 2 track stereo mix in a DAW system and export a high resolution final master file.
Create masters to maximize LUFS audio volume to industry standards.

DIGIT 210 - Pre-Production Project I (5)

In the pre-production project I course, students will design, develop, script and plan a digital media project

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Comprehend communication techniques when creating a digital media
Comprehend design techniques when creating a digital media production
Comprehend scheduling techniques when creating a digital media production
Comprehend scripting techniques when creating a digital media production
Students will apply a unscripted concept using a mobile device

DIGIT 211 - Production Process Project I (5)

In the production process project I course, students will edit digital elements together into a finished project with meaning and aesthetics

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Comprehend casting techniques when creating a digital media production
Comprehend crewing techniques when creating a digital media production
Comprehend production techniques when creating a digital media production
Comprehend scheduling/shooting techniques when creating a digital media production

DIGIT 212 - Post-Production Project I (5)

In the post-production project I course, students will edit digital elements together into a finished project with meaning and aesthetics

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply basic editing techniques while assembling a story from an unscripted production
Apply/Comprehend audio editing techniques when creating a digital media production
Apply/Comprehend graphic techniques when creating a digital media production
Apply/Comprehend storytelling techniques when creating a digital media production
Apply/Comprehend video editing techniques when creating a digital media production

DIGIT 220 - Pre-Production Project II (5)

In the pre-production project II course, students will design, develop, script and plan a digital media project

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply communication techniques when creating a digital media production
Apply design techniques when creating a digital media production
Apply scheduling techniques when creating a digital media production
Apply scripting techniques when creating a digital media production

DIGIT 221 - Production Process Project II (5)

In the production process project II course, students will deign, develop, script and plan a digital media project

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply casting techniques when creating a digital media production
Apply crewing techniques when creating a digital media production
Apply Production techniques when creating a digital media production
Apply scheduling/shooting techniques when creating a digital media production

DIGIT 222 - Post-Production Project II (5)

In the post-production project II course, students will edit digital elements together into a finished project with meaning and aesthetics

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Perform an analysis graphic techniques when creating a digital media production
Perform an analysis of storytelling techniques when creating a digital media production
Perform an analysis on audio editing techniques when creating a digital media production
Perform an analysis on video editing techniques when creating a digital media production

DIGIT 292 - Independent Projects (5)

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Perform an analysis graphic techniques when creating a digital media production
Perform an analysis of storytelling techniques when creating a digital media production
Perform an analysis on audio editing techniques when creating a digital media production
Perform an analysis on video editing techniques when creating a digital media production

DNTA-Dental Assisting

DNTA 101 - Dental Sciences I (5)

Introduction to basic biomedical dental sciences and terminology to include the landmarks of the face and oral cavity, tooth morphology, embryology and histology. The history of dentistry, the dental health team, HIPPA, multicultural interactions, psychology, communication and the State Dental Practice Act will also be introduced.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Explain the fundamentals of head and neck anatomy and physiology
Explain the morphology, location, eruption schedule, and function of each tooth in both the permanent and primary dentition.
Explain the legal and ethical aspects of dentistry including confidentiality and privacy regulations and the State Dental Practice Act.
Explain the psychology of patient management and interpersonal communication.
Describe multicultural interaction in the dental setting
Explain the fundamentals of oral embryology and histology

DNTA 102 - Introduction to Chairside Assisting (5)

This course provides instruction in four-handed dentistry techniques and prepares the student to assist the dentist chairside. Content of the course includes; health history and vital signs, identification and management of medical emergiencies, principles and procedures of four-handed dentistry, oral evacuation, moisture control, instrument transfer and charting.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Prepare a patient for dental treatment by reviewing the proper documents and performing an intraoral and extraoral examination.
Eplain the components of the patient record and how it is developed.
Describe and respond to medical emergency situations that may take place in the dental office.
Demonstrate basic concepts in dental assisting

DNTA 103 - Dental Materials I (4)

Basic physical and technical aspects of dental materials utilized in restorative and laboratory dental materials. Designed to develop the knowledge of the properties and manipulative skills necessary for the application of these materials to include, but not limited to; dental lab safety and asepsis, infection control, gypsum, impression materials, acrylics and waxes, fabrication of study casts, whitening trays and final impression materials.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe various types of gypsum products and their uses in dentistry.
Demonstrate the preparation and taking of occlusal registrations and preliminary study cast impressions.
Create study casts inboth plaster and stone.
Fabricate whitening and custom trays
Demonstrate proper lab safety and aseptic technique

DNTA 112 - Biomedical Sciences (5)

This course is an introduction to microbiology, disease transmission, and standard infection control practices including aseptic techniques in the dental office. Hazardous waste management, HIV/AIDS, waterline maintenance and safety standards are also emphasized.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Identify the groups of microorganisms and the diseases they cause which are of major concern to the dental assistant.
Identify the rationale, regulations, recommendations, and training that govern infection control in the dental office.
Practice proper management of hazardous and infectious materials in the dental setting.
Demonstrate proper disinfection and sterilization steps in a dental setting
Explain the steps for maintaining and disinfecting the dental unit water line.
Apply infection control and safety guidelines in the dental setting
Explain disease transmission and the asceptic techniques used to prevent it

DNTA 115 - Chairside Skills (6)

This course continues to build on providing instruction in advanced four-handed dentistry techniques. Content includes lecture and laboratory application of advanced chairside skills including dental dam, rotary instruments, dental anesthesia, matrix and wedge, and restorative tray setups.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate correct placement of the dental dam
Describe the use of various types of anesthetic in dentistry
Properly load and transfer the anesthetic syringe
Identify various dental rotary instruments and burs
Place and remove various matrix retainers, bands and wedges
Set-up trays and materials for restorative dental procedures

DNTA 116 - Dental Sciences II (4)

Students are introduced to the fundamentals of oral health and preventative techniques, pediatric dentistry, sealants, nutrition and general anatomy and physiology.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Explain the techniques and procedures used to prevent and care for oral disease.
Describe nutrients found in the human diet and their impact on dental health.
Describe the basic structures and functions of the human body systems
Explain the fundamentals of pediatric dentristry

DNTA 117 - Dental Materials II (5)

This course is a continuation of the physical and technical aspects of dental materials utilized in restorative and laboratory dental procedures. Coronal polish, various restorative materials, dental cements, and temporary restorations are all introduced.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate a coronal polish procedure including patient preventive education, oral hygiene instruction and application of fluoride.
Properly mix various dental cements, bases and liners
Demonstrate emerging skills in assisting with a direct permanent restoration.
Place and carve a temporary restoration
Properly apply pit and fissure sealant

DNTA 123 - Specialty Skills (5)

This course provides instruction in the fundamental principles, instrumentation and procedures of various dental specialties to include; endodontics, oral pathology, pharmacology, oral and maxillofacial surgery, orthodontics, periodontics, and prosthodontics. Procedures for dental emergencies is also covered.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe the scope of the practice for Periodontics including specialist training and common procedures and equipment
Describe the scope of the practice for Endodontics including specialist training and common procedures and equipment.
Describe the scope of the practice for oral and maxillofacial surgery including specialist training and common procedures and equipment.
Describe the scope of the practice for orthodontics including specialist training common procedures and equipment
Describe the scope of the practice for prosthodontics including specialist training and common procedures and equipment.
Explain the fundamentals of oral pathology
Explain the fundamentals of pharmacology as it pertains to dentistry

DNTA 125 - Office Administration (5)

Introduction in the application of skills and responsibilities of an office administration assistant in a dental practice. Fundamentals and practical application in basic computer and dental software, oral and written communication skills, business ethics and jurisprudence, inventory systems and supply ordering, management of patient information, recall system and appointment scheduling, dental insurance billing, employment protocols and basic bookkeeping skills.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Use industry specific computer and dental software to input data
Explain dental business ethics and jurisprudence including maintenance and retention of business records.
Demonstrate professional oral and written communications in the office setting.
Demonstrate industry accepted management of patient records including recall systems, appointment scheduling and insurance billing.
Describe inventory systems and supply ordering.
Identify proper interview techniques

DNTA 126 - Advanced Chairside Skills (6)

An advanced chairside skills course related to assisting with restorative procedures and fixed prosthodontic procedures.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Properly set-up and assist with a crown/bridge preparation procedure
Demonstrate fabricating, cementing and removing provisional crown and bridge restorations.
Demonstrate charting existing dental restorations and planned treatment in the patient chart
Properly set-up and assist with a direct permanent restoration procedure.

DNTA 135 - Practical Lab Applications (3)

Practical application of procedures permitted by the Washington State Dental Practice Act.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrates advanced technical skills from previously learned coursework.
Produce a diagnostically acceptable full mouth image survey on a minimum of 1 manikin.

DNTA 144 - Dental Radiology (5)

Theory and basic principles of intraoral radiographs; characteristics and methods of controlling radiation, hazards of radiation and the biological effects of radiography, anatomical landmarks and pathologies. Practical application includes radiographic exposures, process and evaluation of DXTTR, infection control, and the use of selected radiographic equipment and image software.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Explain radiation health precautions.
Identify anatomical landmarks and pathologies on dental radiographs.
Explain various processing procedures for dental radiographs.
Describe the technique and components of digital dental imaging.
Adhere to proper infection control standards
Apply basic principles associated with the generation of radiation exposure
Compare techniques used to produce intraoral radiographs
Explain the different mounting procedures for dental radiographs
Produce a diagnostically acceptable full-mouth image survey on a manikin

DNTA 148 - Advanced Dental Radiography (5)

An advanced course in dental radiography further developing dental imaging techniques. Includes intra-oral and extra-oral radiography on DXTTR and a minimum of two patients. Techniques for special populations will also be addressed.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstate various techniques for taking both intraoral and extraoral radiographs
Produce a diagnostically acceptable full-mouth image survey on a minimum of 2 patients.
Correctly mount a full-mouth image survey
Effectively select the technique needed to achieve diagnostically acceptable radiographs/images on a special population patient.

DNTA 151 - Clinical Experience I (5)

Students are assigned to off campus dental offices in the community or the Bates Dental Clinic. Clinical assignments are designed to enhance students' competence in performing dental assisting functions with emphasis on chairside assisting, radiograph technique, patient management skills, and professionalism. General Dentistry is emphasized. Weekly attendance, procedure

tracking and journal entries are required.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate industry accepted work habits/attitude.
Demonstrate oral and written communication skills in the health care setting.
Demonstrate industry accepted patient interactions.
Demonstrates safe and effective beginning level chairside dental assisting skills in a clinical setting

DNTA 154 - Clinical Experience II (5)

Students continue their clinical practice to perfect their skills in performing dental assisting functions including expanded functions. General Dentistry or Specialty Dentistry is emphasized.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Demonstrate safe and effective entry level chairside dental assisting skills, to include expanded functions in a clinical setting.
Demonstrate appropriate industry accepted work habits and attitude
Demonstrate oral and written communication skills
Demonstrate industry accepted patient interactions.

DNTA 155 - Clinical Seminar (2)

Weekly discussion sessions on topics related to experiences during clinical experience. Occasional guest speakers are included. Resume development and interview techniques will also be addressed.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Effectively describe the student's own clinical experience both orally and in writing
Identify proper interview techniques
Create a final quality work-ready resume

DNTU-Denturist

DNTU 101 - Asepsis, Infection, Hazard Control (2)

Students train in safety procedures including OSHA/WSHA and infection control compliance for Denturists offices and laboratories. This includes a special emphasis on the materials, hazardous materials, interpreting MSDS's, equipment, and procedures mandated in the dental environment for protection of staff and patients from infection by infectious disease organisms. Students also complete the State of Washington "Aids Awareness Course."

Offered: Fall, Spring.

Outcomes
Define asepsis infectious disease
Define the basic principles of unit dosing
Define the basic principles of standard precautions
Describe how to utilize barrier techniques in the clinic/laboratory.
Describe the standard precautions including, infection control, medical history, hand washing, personal protective equipment, barriers, chemical disinfectants, ultrasonic cleaners, sterilizers, and instrument storage
List several ways to reduce cross contamination
List the general considerations for dental equipment decontamination
Define the basic principles of bloodborne pathogens

DNTU 102 - Biological Concepts (3)

Students study cell biology, microbiology, developmental embryology, and histology with an emphasis on the oral cavity.

Offered: Fall, Spring.

Outcomes
Describe how the workings of cell biology; the make up and workings of cells
Embryology and Oral Histology; introduction to embryology and various oral tissue make ups
Microbiology; types of microbes discuss with emphasis on bacteria and viruses
Tissues and epithelium; describe various tissues with emphasis on epithelium

DNTU 103 - Introduction to Complete Denture Prosthodontics (3)

This course covers the basic anatomy of the residual ridge and surrounding structures as well as primary and final impressions of these ridges using the proper materials and trays. Impressions are poured and trimmed with proper materials and techniques.

Offered: Fall, Spring.

Outcomes
Identify, discuss and point out on casts and written tests: the anatomy of the oral cavity; dentate, edentulous
Structures supporting dentures

DNTU 104 - Baseplates and Occlusions Rims (2)

This course covers fabricate base plates and occlusal rims using various materials in preparation for tooth setting

Offered: Fall, Spring.

Outcomes
Define asepsis infectious disease
Fabrication and usage of various baseplate materials and wax rims

DNTU 105 - Tooth Selection and Set I (3)

Students apply proper tooth selection and ordering techniques and then start their required lab set ups.

Offered: Fall, Spring.

Outcomes
Students will perform satisfactory complete denture set ups with 20, 0, and 30 degree teeth.

DNTU 106 - Dental Materials I (2)

Students study various dental gypsum, impression material, dental waxes and denture base materials.

Distribution: Professional Education. Offered: Fall, Spring.

Outcomes
Demonstrate how and when to use dental materials along with their properties based on the knowledge gained from demonstrations and lectures in the following areas:
Dental gypsum products
Various types of dental waxes
Denture base materials and the main compositions and properties
Students will be able to identify the various classes of impression materials and their uses

DNTU 107 - Denture Techniques I (2)

This course covers the wax up, processing, and other lab steps needed to supply a proper prosthesis for a patient.

Offered: Fall, Spring.

Outcomes
Students will choose one of their previous denture set ups and continue through processing, re-mounting, selective grinding, and complete polish.

DNTU 108 - Complete Denture Fabrication I (2)

In the complete denture fabrication I practical lab, students develop and apply the proper techniques in set up, processing and polishing an acrylic RPD (flipper)

Offered: Fall, Spring.

Outcomes
perform techniques in making a flipper and how they differ from complete dentures

DNTU 109 - Dental Office Management I (1)

In the dental office management I clinical lab, students identify proper patient record keeping. In addition, individual policy and informational hand outs are completed in preparation for actual clinical cases

Offered: Fall, Spring.

Outcomes
recognize what should and should not be part of a patient record; also how patient records should be handled
Make up a generic record
Develop a clinic policy letter and patient instructions for dentures and partials

DNTU 110 - Head Anatomy and Physiology I (2)

This course introduction to the anatomy and physiology of the head, neck, temporomandibular joint, muscles, nerves, blood vessels, lymphatic system, skeletal system, digestive system, and dental anatomy related to sinuses, glands, teeth, periodontal structures, and other oral structures

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Identify the components and functions of the skeletal system
Identify the components and functions of the nervous system
Identify the components and functions of general muscles and the muscles of facial expressions
Identify the components and functions of the muscles of mastication and the TMJ
Identify the components and functions of the muscles of the tongue, hyoid, larynx, and pharynx

DNTU 111 - Tooth Selection and Set II (1)

This course continues DNTU 105 with further required lab set up

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Understand the unique differences and when to use the 20 degree set up
Understand the unique differences and when to use the lingual contact set up

DNTU 112 - Medical Emergencies (3)

This course focuses on first aid and CPR procedures in simulated situations. This includes the provider CPR/first aid course. Health histories are taken and analyzed for information important to needed patient care

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Be certified in CPR/First Aid for health professionals
Analyze PT health HXs for potential emergencies
Pass a written test on the subjects

DNTU 114 - Clinical Denture Fabrication II (1)

This course is a continuance of DNTU108, students will apply techniques previously learned in DNTU 108 and work on real patient cases when available

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
use skills learned in DNTU108 and DNTU113 and use them on actual patient repairs, relines and flippers

DNTU 115 - Partial Dental Casts (2)

This course introduces students to area of removable partial dentures including theory, clinical classification and evaluation

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Explain the basic theory behind RPD design, the components, what the components do, and when they should be used
First 7 cases to be designed on paper and then models before the semester ends

DNTU 116 - Framework Design-RFD (3)

In this course students survey study models and design practical cases

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Apply the proper use of the Ney Surveyor
First 7 practical cases are continued through cast design, ending with mouth preps on models

DNTU 117 - Dental Office Management II (2)

In this course students perform proper scheduling, billing and HIPPA privacy requirements on actual cases

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Perform proper patient records establishment and documentation on their actual patient cases
Schedule their PT cases in a proper and time fashion

DNTU 118 - Clinical Denture Procedures I (2)

This practical clinical denture procedures I course, students will prepare proper room set up and tear down procedures for clinical cases along with clinical instrument processing. All clinical aspects of assigned pt cases are accomplished

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Perform the proper techniques needed to treat patients in the clinic
Set up and break down operatory properly

DNTU 119 - Dental Impressions Procedures I (2)

In the practical dental impressions procedures I clinical experience, students will perform impressions on patient cases assigned by instructors

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 101, 102, 103, 104, 105, 106, 107, 108 and 109. Offered: Winter, Summer.

Outcomes
Choose the proper impression materials and take impressions on assigned pt. cases
Disinfect and properly pour impressions
Properly trim casts for clinical cases

DNTU 120 - Head Anatomy and Physiology II (3)

This course completes the remaining anatomical systems not covered in DNTU 110

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Identify the components and functions of the cardiovascular/respiratory systems
Identify the components and functions of the exocrine and endocrine systems and the tongue
Identify the components and functions of the digestive system
Identify the components and functions of nutrition
Identify the components and functions of the lymphatic and immune systems

DNTU 121 - Tooth Selection and Set III (1)

This practical lab course complete their required set ups of cross-bite cases and a timed 20 degree

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Define the unique differences and when to use cross-bite set ups #1, 2 and 3
Identify the unique differences and when to use 100 minute timed 20 degree set up

DNTU 123 - Complete Denture repair I (2)

>In this course students complete denture repairs on clinical cases

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Accomplish repairs on actual cases en route to the required 4 needed for graduation

DNTU 124 - RPD Frames Fabrication (2)

This course requires students to complete cast designs on paper, student continues to survey and design cases 8-15 on lab models

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114,

115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Survey, design and complete mouth preps on cases 8-14

DNTU 125 - Oral Pathology (2)

This course is the continuance of the introduction Oral Pathology I, students will apply prior skills, and theory to fulfill the oral pathology studies

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
Identify what are normal findings and abnormal findings needing referral. Radiographic findings studied where applicable as well as passing written exams in
Red and Red-White lesions
Pigmented lesions and sex-related lesions
Nodules and Papules
Vessiculobullous lesions
Radiographic abnormalities of the jaws

DNTU 126 - Clinical Denture Procedures II (2)

This course is a practical learning experience to learn proper room set up and tear down procedures for clinical cases along with clinical instrument processing. Actual patients are treated during this course toward their total of 10

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Use the proper techniques needed to treat patients in the clinic
Complete actual pt. cases assigned in timely manner that meets standards of care

DNTU 127 - Dental Impressions Procedures (2)

In this course students perform impressions, bite registrations and proper mounting on clinical cases assigned during this semester

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Apply various types of materials for different cases as well as varying techniques

DNTU 128 - Fabrication Clinical II (1)

In this practical lab experience students complete the required clinical case lab work assigned to them this semester

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Apply previous pre-clinical knowledge and skills to start into and complete full clinical cases

DNTU 129 - Polish Methods -RPD Frames (1)

In this course students follow proper techniques to block out and duplicate cases prior to waxing up RPDs. Then students will observe how finished frameworks are tried into the mouth

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
demonstrate how to evaluate the fit and make any adjustments needed to insert an RPD
Reflect on what and how to block out models prior to duplicating
duplicate 4 cases from models 8-14 in preparation for waxing up frames

DNTU 131 - Wax Patterns - Partials (4)

In this course students perform framework wax ups on assigned practical cases

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Winter, Summer.

Outcomes
Research what is used by labs to wax up RPD frames; Wax up RPD patterns on the 4 previously duplicated models

DNTU 132 - Teeth Arrangement -RPD (2)

In this course students set teeth in partials opposing dentures, other RPDs or natural teeth, as well as

completing the RAP lab practical case

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Winter, Summer.

Outcomes
Demonstrate various ways to evaluate cases in aiding their tooth selection in RPDs
Complete the final lab RPD cases using RAPs

DNTU 135 - Introduction to Oral Pathology I (3)

This course is an introduction to Oral Pathology

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Winter, Summer.

Outcomes
Identify what are normal findings and abnormal findings needing referral
Radiographic findings studied where applicable
Passing written exams in basic pathology terms and descriptions

DNTU 136 - Clinical Denture Procedures III (2)

In the clinical denture procedures III practical lab experience, requires students perform the necessary clinical work on assigned patient cases

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Winter, Spring.

Outcomes
complete assigned patient cases in a timely and appropriate manner toward program completion

DNTU 138 - Fabrication Clinical III (2)

The fabrication clinical III lab, is required work for their clinical cases assigned to them this semester

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139.

Outcomes
Apply previous pre-clinical knowledge and skills to complete their clinical cases

DNTU 139 - Dental Office Manager III (2)

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 110, 111, 112, 114, 115, 116, 117, 118 and 119. Offered: Fall, Spring.

Outcomes
Perform proper patient records establishment and documentation on their actual pt. cases
Schedule pt. cases in a proper and timely fashion develop a sense of the time required for both the clinical and lab work associated with various types of patient treatment

DNTU 201 - Complete Denture Repair II (2)

In the complete denture repair II practical lab course, students practice the proper techniques used to accomplish complex repairs on dentures

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
use more complex techniques for denture repairs and post-op adjustments
Finish the required 4 clinical repairs

DNTU 203 - RPD Repair Methods (3)

In this course students apply skills in the lab utilizing techniques unique to partial denture repair/relines

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
Replace a broken clasp
Add a clasp/replace lost abutment
Altered cast technique
Use permanent soft reline materials

DNTU 204 - Dental Office Management IV (2)

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Winter, Spring.

Outcomes
Appreciate the necessity of accurate complete record keeping and proper record handling
Perform proper patient records establishment and documentation on their actual pt. cases
Schedule their pt. cases in a proper and timely fashion

DNTU 205 - Denture Adjustments (1)

In this course students perform post-insertion adjustments of their clinical cases as needed

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
Determine what to adjust and when to adjust
Use the systematic way to discover the cause(s) of patient complaints
Get all cases to "Tx Com"

DNTU 206 - Ethics and Jurisprudence (1)

In this course, federal and State laws are discussed as they relate to licensing. Ethics pertaining to a licensed healthcare professional are discussed

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
Define the difference between Legal and Ethical
Review RCWs and WAC regulations
Pass the on-line WA St Jurisprudence test

DNTU 207 - Malocclusions (2)

In this course students study different occlusal schemes and perform face-bow remounts and occlusal corrections of clinical cases where needed

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
Use a Face-Bow to perform a patient remount
Perform Occlusal corrections on a patient remount
Set denture occlusion for Class II and Class III cases where available

DNTU 208 - Clinical Denture Procedures IV (2)

In this clinical denture labIV course students continue to complete their clinical cases and are given opportunities to practice unique, specialized techniques found in industry

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
complete the last remaining patient cases needed for graduation, trying to find new, unique cases when available, to ensure as much variety in clinical cases as possible

DNTU 210 - Geriatric Patient Needs (3)

Outcomes
Use the College library and other outside sources to obtain information and decide which is accurate or just selling you a line.
Produce a Lit. review paper from acquired information that is of publishable quality

DNTU 211 - Fabrication Clinic IV (2)

In the fabrication clinical IV course students will complete the lab portions required clinical cases assigned to them this semester.

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
Utilize previous pre-clinical knowledge and skills to complete full clinical cases

DNTU 212 - Alternative RPD Systems (2)

In this course students will research the history of implants and the numerous systems available for us

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 125, 201, 203, 205, 206, 207, 208, 211, and 220. Offered: Winter, Spring.

Outcomes
Recognize alternative methods and materials for RPDs and complete the RPD final including: Flexible partials; Dual-path technique; Altered-cast technique; Swing-lock partials; "invisible" clasps

DNTU 213 - Implant/Precision Attachment (1)

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 125, 201, 203, 205, 206, 207, 208, 211, and 220. Offered: Winter, Summer.

Outcomes
Recognize the basics of implant-supported dentures

DNTU 214 - Advanced Special Services (1)

This course provides students the opportunity to research and seek further into the an area of study that has increased their interest in previous courses. This course also prepares students for the Com. Denture final exam

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 125, 201, 203, 205, 206, 207, 208, 211, and 220. Offered: Winter, Summer.

Outcomes
Review all previous info on complete dentures in preparation for the Com. Denture final exam
Pass the written Comprehensive Complete Denture Test

DNTU 215 - Advanced Dental Appliances (1)

In this course students discuss and when available work on advanced cases such as gasket retained dentures, swing –lock and dual-path RPDs. If and when other rem. appliances become part of the denturist scope of practice, bleaching trays, nightguards and bruxing appliances will be taught in this course

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 125, 201, 203, 205, 206, 207, 208, 211, and 220. Offered: Winter, Summer.

Outcomes
Fabricate a bleaching tray
Fabricate a sports mouth guard
Fabricate a night guard/bruxing appliance

DNTU 220 - Dental Office Management V (2)

In the dental office management V clinical lab, students will complete their record treatment documentation on their clinical cases including scheduling both clinic appointments and required lab time. State laws dealing with records are discussed and the State on-line jurisprudence exam is taken prior to Board application

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Fall, Spring.

Outcomes
Appreciate the necessity of accurate complete record keeping and proper record handling
Perform proper patient records establishment and documentation on their actual pt. cases
Schedule their pt. cases in a proper and timely fashion

DNTU 222 - Fabrication Clinical V (3)

In the fabrication clinical V course, students are to complete the lab portions of required clinical cases assigned to them this semester.

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 125, 201, 203, 205, 206, 207, 208, 211, and 220. Offered: Winter, Summer.

Outcomes
Flasking , processing and polishing patient prosthesis
Pouring up , trimming , and mounting models
Setting teeth in wax for try-ins.
Students draw on all their previous pre-clinical knowledge and skills to complete full clinical cases.

DNTU 223 - Dental Office Management VI (3)

In this course students complete their record treatment documentation on their clinical cases and transfer any unfinished cases. State laws dealing with records are discussed and the State on-line jurisprudence exam is taken prior to Board application

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 125, 201, 203, 205, 206, 207, 208, 211, and 220. Offered: Winter, Summer.

Outcomes
At the completion of this course, students will be able to:
After a complete review of all lectures and practice cases, pass the RPD Final Exam.

DNTU 229 - Clinical Denture Procedures V (4)

The clinical denture procedures V clinical lab course, is a continuance for students to complete their 10 required

clinical cases and are given opportunities to practice unique, specialized techniques found in industry

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 125, 201, 203, 205, 206, 207, 208, 211, and 220. Offered: Winter, Summer.

Outcomes
complete the last remaining pt. cases needed for graduation trying to find new, unique cases when available, to ensure as much variety in clinical cases as possible
Both Bruxism night guards and Flexible Partials now count toward the required 10 patient cases.

DNTU 233 - Finish Methods -RPD (1)

A review of all previous lab and clinical cases is accomplished and then the RPD final exam is taken.

Prerequisite: Completion of all previous quarter's courses with passing grades of 2.0 or higher is required for registration into this course: DNTU 120, 121, 123, 124, 126, 127, 128, 129 and 139. Offered: Spring, Summer.

Outcomes
complete review of all theory research and practice cases, pass the RPD Final Exam

DNTU 296 - Work-Based Learning

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Prerequisite: Instructor Permission.

Outcomes
complete review of all theory research and practice cases, pass the RPD Final Exam

ECED-Early Childhood Education

ECED& 105 - Intro to Early Childhood Education (5)

Explore the foundations of early childhood education. Examine theories defining the field, issues and trends, best practices, and program models. Observe children, professionals, and programs in action (Birth to age 8).

Distribution: Career Training. Offered: Fall, Spring, Summer.

ECED& 107 - Health, Nutrition and Safety (5)

Develop knowledge and skills to ensure good health, nutrition and safety of children in group care and educational programs for age’s birth to eight. Recognize the signs of abuse and neglect, responsibilities for mandated reporting, and available community programs.

Distribution: Career Training. Offered: Fall, Spring, Summer.

ECED& 120 - Practicum - Nurturing Relationships (2)

In an early learning setting apply best practice for engaging in nurturing relationships with children. Focus on keeping children healthy and safe while promoting growth and development. (Birth to age 8)

Distribution: Career Training. Offered: Fall, Winter, Summer.

ECED& 132 - Infant and Toddler Care (3)

Examine the unique developmental needs of infants and toddlers. Study the role of the caregiver, relationships with families, developmentally appropriate practices, nurturing environments for infants and toddlers, and culturally relevant care (Birth to 3 years of age).

Distribution: Career Training. Offered: Winter, Summer.

ECED& 134 - Family Child Care (3)

Learn the basics of home/family child care program management. Topics include: licensing requirements; business management; relationship building; health, safety, & nutrition; guiding behavior and; promoting growth development. (Birth to grade 6)

Distribution: Career Training. Offered: Spring.

ECED& 139 - Admin of Early Learning (3)

Develop administrative skills required to develop, open, operate, manage, and assess early childhood education and care programs. Explore techniques and resources available for Washington State licensing and NAEYC standard compliance (Birth to grade 6).

Distribution: Career Training. Offered: Spring.

ECED& 160 - Curriculum Development (5)

Investigate learning theory, program planning, and tools for curriculum development promoting language, fine/gross motor, social-emotional, cognitive and creative skills and growth in young children (Birth to age 8).

Distribution: Career Training. Offered: Fall, Spring,.

ECED& 170 - Environments for Young Children (3)

Design, evaluate, and improve indoor and outdoor environments which ensure quality learning, nurturing experiences, and optimize the development of young children (Birth to age 8).

Distribution: Career Training. Offered: Fall, Spring.

ECED& 180 - Language & Literacy Development (3)

Develop teaching strategies for language acquisition and literacy skill development at each developmental stage (birth-age 8) through the four interrelated areas of speaking, listening, writing, and reading.

Distribution: Career Training. Offered: Spring.

ECED& 190 - Observation and Assessment (3)

Collect and record observation of and assessment data on young children in order to plan for and support the child, family and community. Practice reflection techniques, summarizing conclusions and communicating findings

Distribution: Career Training. Offered: Fall, Spring.

ECE-Early Childhood Education

ECE 204 - Early Childhood Practicum II (2)

Students spend time in early learning settings practicing and developing teaching skills, planning/implementing/evaluating children's activities and participating in curriculum planning. Students will observe children using the Ages and Stages Questionnaire (ASQ). Students will schedule and conduct family conferences with their on-site supervisor to practice skills in communicating with families. This practical field experience is based on children ages birth through 3 years old.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate knowledge of developmental patterns of special needs children.
Classify causes of specified developmental delays/disabilities.
Outline types of programs for children with differing abilities.
Discuss the implications of ADA for early education.
Develop an understanding of the impact of a special needs child on family dynamics.
Create a resource of common disabilities, assessment/early intervention/community and educational resources

ECE 207 - Professionalism (5)

The application of the profession's code of ethics and advocacy for children and families is emphasized. Students/Candidates also develop a professional portfolio and create a resource file of professional publications and organizations. (Birth to age 8)

Distribution: Career Training. Offered: Spring.

Outcomes
Advocate effectively on behalf of young children and families
Demonstrate ethical behavior while working with children, families, colleagues, community and society
Develop a professional portfolio
Develop a resource file
Know, reflect critically upon and use the NAEYC Code of Ethics

ECE 210 - Early Childhood Practicum III (2)

Students spend time in a early learning settings practicing and developing teaching skills, planning/implementing/evaluating children's activities and participating in curriculum planning. Students will observe children using the Ages and Stages Questionnaire (ASQ).

Students will schedule and conduct family conferences with their on-site supervisor to practice skills in communicating with families. This practical field experience is based on children ages 3 years to 8 years old.

Distribution: Career Training. Offered: Spring.

Outcomes
Develop and practice teaching skills.
Plan, implement and evaluate appropriate activities for children 3 years to 8 years old.
Schedule and participate in family conferences with supervisor in practicum setting.
Practice using the ASQ in development of children's portfolios.

ECE 211 - Emotional and Social Development (3)

Demonstrate knowledge of factors that affect the healthy emotional and social development of children, the support of children's self concept, effects of an individual's temperament on adult/child and child/child relationships, social/emotional milestones, and activities that support pro-social behavior.

Distribution: Career Training. Offered: Spring.

Outcomes
Demonstrate understanding ways to support positive self-concepts.
Discuss/apply knowledge of how each individual's temperament effects adult/child and child/child relationships.
List/recognize milestones in development of social skills.
Create/demonstrate/evaluate activities that support children's pro-social behavior.
Observe/record children's social skills.

ECE 212 - Cognitive Development (5)

Students will demonstrate knowledge of learning styles; identify milestones in development of cognitive skills, and create/demonstrate/evaluate cognitive development activities. Students will develop tools to support developmentally appropriate practices (DAP) and culturally, linguistically, and ability diverse (CLAD) children. Students will practice using inquiry methods in the development of science, technology, engineering and mathematical activities to encourage cognitive development.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Create/demonstrate/evaluate activities that support development of cognitive skills
Describe/present activities for specified learning styles supporting DAP and CLAD.
Identify/record milestones in development of cognitive skills.
Observe/record developmental stages of cognitive development.
Plan and present activities to encourage language development
Plan/create/demonstrate activities to encourage creative expression.

ECE 213 - Creative Experience - Art & Movement (5)

This course addresses the importance of high quality and meaningful creative expression across the early childhood curriculum. Students will develop teaching strategies to support creativity, plan and implement developmentally appropriate creative activities, and explore the development of art in young children birth to age 8.

Distribution: Career Training. Offered: Spring.

Outcomes
Describe art activities that promote vocabulary and stimulate growth and development for all children birth to age 8, including culturally, linguistically and ability diverse children.
Describe creativity's role in the classroom and the importance of differentiated instruction that is culturally diverse and encourages awareness of children's individual characteristics.
Explain appropriate goals/guidelines used in creative music and movement for young children.
Plan and implement assorted activities using a variety of mediums to support children's creative processes.
Recognize children's artistic developmental sequences and their relationship to pre-academic development.

ECE 215 - STEM for Young Children (3)

This course is designed to increase student's knowledge of an ability to implement high quality instructional strategies that support young children's learning and development appropriate ways through the STEM (Science, Technology, Engineering and Math) process. This course will align with NAEYC (National Association for the Education of Young Children) standards and engage in best practices such as culturally, linguistically, and ability

diverse. These online modules are interactive and engaging, providing experiential learning opportunities as well as reflection.

Distribution: Career Training.

Outcomes
Identify STEM and describe the similarities and differences between Science, Technology, Engineering and Math
Distinguish the key barriers to STEM learning across culturally, linguistically and ability diverse
Plan activities that engage young children in active learning about Science, Technology, Engineering, and Math
Apply project-based learning best practices to lesson planning.
Design a STEM curriculum that connects the above lessons and best practices.

ECE 296 - Work-Based Learning Experience (1 to 13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. *INSTRUCTOR APPROVAL REQUIRED

Distribution: Career Training. Prerequisite: INSTR APP REQ.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

ECON-Economics

ECON& 201 - Microeconomics (5)

This course focuses on the theory of the market systems as a method of allocating resources and distributing income and products. Analysis of current problems including government regulation, subsidies, monopoly and taxation

Distribution: General Education.

ECON& 202 - Macroeconomics (5)

Introduction to macroeconomics; elementary analysis of the determination of income through national income accounting. Covers macroeconomic issues including inflation, unemployment, economic growth, recessions, monetary/fiscal policy, and international trade and finance. Prerequisite: ECON 201, MATH 098, and ENGL 101 is recommended.

Distribution: General Education. Offered: 4.

ECS-Electronics Communications Systems Technology

ECS 101 - Introduction to Electronics (2)

This course provides students with knowledge of fundamental electronic systems, quantities, units, and engineering and scientific notation used in the field of electronics. The course provides relevance to circuits and applications and delivers the material via a systems approach combined with electronic theory. Complex arithmetic is not required for this course.

Distribution: Career Training. Offered: 1.

Outcomes
Comprehend fundamental electronic systems, quantities, units used in electronics
Demonstrate safety practices when working around live circuits
Use industry specific terminology for basic electronics units

ECS 102 - DC Circuits (5)

This course provides students with knowledge of ohms law, energy, power, series and parallel circuits, and magnetism and electromagnetism. The course provides relevance to circuits and applications and delivers the material via a systems approach combined with electronic theory. Complex arithmetic is not required for this course.

Distribution: Career Training. Offered: 1.

Outcomes
Analyze series and parallel circuits
Analyze Ohm's Law and energy
Use a digital multimeter

ECS 104 - Analog Circuits I (2)

This course provides students with knowledge and application of diodes and transistors. The course provides relevance to circuits and applications and delivers the material via a systems approach combined with electronic theory. Complex arithmetic is not required for this course

Distribution: Career Training. Offered: 1.

Outcomes
Analyze diode and transistor circuits
Work with semiconductors and applications
Analyze field effect transistors
Troubleshoot diode and transistor circuits

ECS 105 - Analog Circuits II (3)

This course provides students with knowledge and application of operational amplifiers and measurement and control devices and circuits. The course provides relevance to circuits and applications and delivers the material via a systems approach combined with electronic theory. Complex arithmetic is not required for this course

Distribution: Career Training. Offered: 2.

Outcomes
Analyze operational amplifier circuits
Work with operational amplifiers and applications
Analyze voltage regulators and power control circuits
Troubleshoot operational amplifier and voltage control circuits

ECS 108 - CET Certification Preparation (3)

This course enhances the skills and knowledge of electronics technicians and students in electronics to a level commensurate with success on the Associate Level Certified Electronics Technician exam

Distribution: Career Training. Offered: 2.

Outcomes
Demonstrate skills and knowledge of DC circuits at a level commensurate with Associate Level CET certification standards
Demonstrate skills and knowledge of AC circuits at a level commensurate with Associate Level CET certification standards
Demonstrate skills and knowledge of transistors at a level commensurate with Associate Level CET certification standards
Demonstrate skills and knowledge of electronics troubleshooting at a level commensurate with Associate Level CET certification standards
Perform basic applied mathematical computations at a level commensurate with Associate Level CET certification standards

ECS 203 - FCC Licensure Prep I (3)

Students prepare for Element 1 of the General Radiotelephone Operator License as issued through the Federal Communications Commission. Element 1 exam consists primarily of basic radio law and operating practices questions. Student s who pass Element 1 will receive their Marine Radio Operators Permit

Distribution: Career Training. Offered: 4.

Outcomes
Be prepared to take and pass industry FCC Element 1 licensing exam
Demonstrate knowledge of radio communication procedures
Demonstrate knowledge of radio equipment operations
Demonstrate knowledge of radio operation rules and regulations

ECS 204 - FCC Licensure Prep II (5)

Students prepare for Element 3 of the General Radiotelephone Operators License as issued through the Federal Communications Commission. This exam consists of radio, electronic circuits, signals and emissions questions. Students who pass Elements 1 and 3 will receive the GROL License. Students must have knowledge in electronics and electronic communications as a prerequisite to the class

Distribution: Career Training. Offered: 4.

Outcomes
Be prepared to take and pass industry FCC Element 3 licensing exam
Demonstrate knowledge of digital logic, receiver, transmitters and modulation
Demonstrate knowledge of electronic and radio installation, maintenance and repair
Demonstrate knowledge of electronic principles, math, components and circuits
Demonstrate knowledge of power sources, antennas, aircraft, marine, RADAR and safety

ECS 205 - Wireless/ RF Communications (2)

This course provides overview of wireless applications, advantages and disadvantages of wireless systems. Introduction to wireless data transmission techniques and standards overview. Simplified, but in-depth look at antennas and their role in successful implementation of a wireless data communications system

Distribution: Career Training. Offered: 5.

Outcomes
Define decibels, gain and loss
Describe how antennas work, RF strength and signal
Explain how major wireless techniques are used today
Explain the radio frequency spectrum
Illustrate concepts through which data is transferred via radio waves
List the key components of a radio system
Understand types of wireless communication

ECS 206 - Wireless Personal Area Networks (1)

Personal, short distance area wireless networks for interconnecting devices centered around a workspace or home is explored. WPANs address wireless networking and mobile computing devices such as PC's, PDA's, peripherals, cell phones, pagers and consumer electronics. Short range wireless data communications technologies including, infrared, Bluetooth, and ZigBee, RFid, WiMedia and Ultra wide band are introduced

Distribution: Career Training. Offered: 5.

Outcomes
Describe a wireless personal area network
Describe security issues of WPAN technology
Explain how IrDA, Bluetooth, UWB and ZigBee work
Understand wireless standards and applications

ECS 207 - Wireless Local Area Networks (2)

This course examines the fundamentals of various 802.11 wireless standards including frequency bands, bandwidth, data rate, and applications. Topics include WLAN components such as NICs, access points, standards, operations and modulation technologies used to enable communication between devices in a limited area

Distribution: Career Training. Offered: 6.

Outcomes
Describe how WLANs are used
Explain the use of wireless bridges and switches
Identify the differences between various 802.11 standards
List the components of a WLAN

ECS 208 - Wireless Broadband Networks (2)

The fundamentals of medium and long range wireless communications from infrared free-space optics to WiMax, cellular and satellite technologies are covered in this class.

Additional technologies studied include local multipoint and multichannel multipoint distribution services used in high speed Internet access, multimedia file transfer, remote access to local area networks and telephone services

Distribution: Career Training. Offered: 6.

Outcomes
Define RFID, applications and functionality
Describe the components and operation of WMAN networks
Discuss how satellite transmissions work
Discuss the challenges and security issues with wireless communications
Explain how cellular telephony functions
List the advantages of wireless communications for business

ECS 210 - Introduction to RF Communications (2)

Students are introduced to wireless RF communications concepts such as radio wave propagation, wavelength, frequency, bandwidth, and signal analysis

Distribution: Career Training. Offered: 3.

Outcomes
Calculate the signal to noise ratio in a radio receiver
Calculate the wavelength of a radio wave and how it relates to physical antenna length
Define modulation/demodulation
Define noise and give examples of internal and external noise sources
Describe functional block diagrams in a radio communications system
Explain the difference between time and frequency domains
List the three steps for troubleshooting systems

ECS 211 - Amplitude Modulation (3)

Amplitude modulation principles are introduced to RF communications systems. Studies focus on fundamentals of AM transmitters and receivers including measurements with oscilloscope and spectrum analyzer

Distribution: Career Training. Offered: 3.

Outcomes
Calculate the image frequency of a signal
Describe the alignment procedures for AM receivers
Draw a block diagram of an AM receiver/transmitter
Explain how an AM diode detector works
Explain the concepts behind an AM signal
List RF, IF and audio frequencies used with AM receivers/transmitters
Use an oscilloscope to measure the percent modulation of an AM signal

ECS 212 - Single Sideband and Frequency Modulation (4)

Single sideband and frequency modulation principles are introduced to RF communications systems. Studies include principles of modulation, demodulation, transmitters and receivers

Distribution: Career Training. Offered: 3.

Outcomes
Calculate the parameters of an FM signal
Describe alignment procedures for an FM receiver
Describe the three operating states of a phase lock loop circuit
Explain how an oscillator is modulated to produce FM
Explain how SSB signals are generated and demodulated
Explain the advantages of SSB over conventional AM transmission
Understand a block diagram of an FM receiver

ECS 213 - Transmission Lines and Antennas (2)

No communications system is complete without a media to transmit information. Types of transmission lines discussed are twisted pair, coaxial, ladder line, and waveguides. Curriculum includes principles of electromagnetic propagation, antenna theory, RF radiation and safety

Distribution: Career Training. Offered: 4.

Outcomes
Calculate the effect of impedance mismatches
Calculate the values needed to provide a link budget
Define line parameters such as velocity factor, impedance and loss
Describe and identify several types of transmission lines and connectors
Describe the basic principles of satellite communications
Describe the characteristics of electromagnetic energy
Identify various antenna types to include dipole, Marconi and Yagi

ECS 214 - Microwave, Telephony, and Cellular (2)

This course focus is on microwave, radar communications systems, circuits and transmission methods. Students learn how land line telephone and cell phone systems work. Additional wireless telephony operations to include AMPS, PCS, CDMA, GSM and TDMA

Distribution: Career Training. Offered: 4.

Outcomes
Describe signaling standards used in the telephone system
Describe the different modes of operation within a waveguide
Describe the operation of DSL, PCS and VOIP systems
Describe the operation of RADAR systems and Doppler shift
Explain the operation of a magnetron and other microwave oscillators
Explain the operation of a traveling wave tube
Understand the overall topology of the US telephone network

ECS 215 - Data and Networking Fundamentals (2)

Studies include basics of data communications and networking fundamentals and topologies, networking hardware and media, LAN's, MAN's and WANs, the seven- layer OSI model and its application, Internet protocol (IP) and MAC addressing concepts, and additional protocols such as TCP, UDP, DHCP and ARP

Distribution: Career Training. Offered: 5.

Outcomes
Describe star, ring and bus topologies
Determine what CSMA/CD stands for and basic Ethernet operation
Explain the difference between serial and parallel communications
List and describe methods for error detection
List the layers of the OSI model
Work with IP addressing and sub netting

ECS 216 - Advanced Communication Principles (2)

Communications technologies change and advance to meet the desires of an information hungry society. Technologies such as global positioning systems (GPS), fiber optic and laser technology are just some of the methods used to deliver information such as data, video and more which are introduced in this course

Distribution: Career Training. Offered: 5.

Outcomes
Describe applications of GPS receivers
Describe the construction of fiber optic cable
Describe the operation of GPS receivers
Describe the operation of LED and LASER light sources
Explain the orbital parameters of satellites
List the segments of a GPS system
Utilize fiber optic specifications for fiber performance

ECS 230 - Telecommunications Lab (2)

Students are introduced to telecommunication systems describing the circuits and components contained, including telephone, cellular, and satellite systems and processes. Students will utilize a laptop computer, and a computer aided instruction online platform to complete training.

Distribution: Career Training.

Outcomes
Define cellular and satellite communications methods
Describe the theoretical and physical structures of a cellular telephone system and discuss the different multiplexing techniques used
Identify the topologies and common components of the various types of networks
Identify types of telecommunications systems
Identify various modulation techniques
Recognize terms, jargon and acronyms associated with the industry
Understand the RF and IR wireless networks and the benefits they provide

ECS 231 - Radio Communications Lab (3)

This lab class teaches the theory of operation, troubleshooting, and repair of standard AM/FM broadcast band receivers and AM/SSB/NBFM communications transceivers. Students will utilize laptop computer, computer aided instruction online platform, electronic experiment cards and industry recognized test equipment to complete training.

Distribution: Career Training.

Outcomes
Define and describe the AM/FM/SSB radio communication
Describe wave characteristics and propagation paths
Identify and measure IF and audio waveforms in AM/FM/SSB radios
Observe the effects of various modulation techniques
Perform AM/FM/SSB troubleshooting and analysis
Read and interpret schematic diagrams of various RF equipment

ECS 232 - Microwave Fundamentals Lab (2)

Students are introduced to microwave systems, waveguide theory, microwave devices and antennas. Students will utilize laptop computer, computer aided instruction online platform, electronic experiment cards, antennas, waveguide and reflectors, and industry recognized test equipment to complete training.

Distribution: Career Training.

Outcomes
Assemble and test circuits, hardware and properties of microwave systems
Describe a waveguide, its advantages and disadvantages
Identify construction and theory of various antennas and styles
Identify microwave principles and frequencies
Observe and trace signals through a microwave transmitter and receiver
Observe and verify that microwave signals can be reflected
Observe effects of microwave transmission signals

ECS 233 - Signals Processing Lab (4)

This lab class teaches the theory of operation, troubleshooting, and repair of various signal processing and modulation techniques to include Time Division Multiplexing, Pulse Code Modulation, Frequency Division Multiplexing, Frequency Shifty Keying Modulation and Phase Shift Keying Modulation. Students will utilize laptop computer, computer aided instruction online platform, electronic experiment cards and industry recognized test equipment to complete training.

Distribution: Career Training.

Outcomes
Define and describe TDM, PCM, FDM, FSK and PSK radio communication
Generate various modulation signals using a function generator
Identify and measure signal process waveforms
Observe and measure the characteristics of various forms of modulation
Observe the effects of various modulation techniques
Perform signal processing troubleshooting and analysis
Read and interpret schematic diagrams of various RF equipment

ECS 290 - Independent Study I (3 to 5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the acheivement of advanced learning in the subject area chosen.

Distribution: Career Training.

Outcomes
Will vary according to the project chosen

ECS 291 - Independent Study II (3 to 5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the acheivement of advanced learning in the subject area chosen.

Distribution: Career Training.

Outcomes
Will vary according to the project chosen

ECS 296 - Work Based Learning Experience (1 to 9)

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

Distribution: Career Training.

Outcomes
This course is provided for students to meet theory requirement of instruction via canvas or other learning management system (LMS). This course requires that students must interact with faculty via LMS for a minimum of 10 hours.

EDUC-Early Childhood Education

EDUC& 115 - Child Development (5)

Build a functional understanding of the foundation of child development, prenatal to early adolescence. Observe and document physical, social, emotional and cognitive development of children, reflective of cross cultural and global perspectives.(Birth to age 8)

Distribution: Career Training. Offered: Winter, Summer.

EDUC& 130 - Guiding Behavior (3)

Examine the principles and theories promoting social competence in young children and creating safe learning environments. Develop skills promoting effective interactions, providing positive individual guidance, and enhancing group experiences.

Distribution: Career Training. Offered: Winter, Summer.

EDUC& 136 - School Age Care (3)

Develop skills to provided developmentally appropriate and culturally relevant activities and care, specifically: preparing the environment, implementing curriculum, building relationships, guiding academic/social skill development, and community outreach.

Distribution: Career Training.

EDUC& 150 - Child, Family and Community (3)

Integrate the family and community contexts in which a child develops. Explore cultures and demographics of families in society, community resources, strategies for involving families in the education of their child, and tools for effective communication.

Distribution: Career Training. Offered: Winter, Summer.

EDUC& 204 - Exceptional Child (5)

This course is an introduction to the characteristics and assessment of children with special needs. Strategies for adapting the learning environment, working with the child, family and supportive community/educational agencies and the implications of the ADA for Early Education Programs is also included.

Distribution: Career Training. Offered: Winter, Summer.

EEST-Electronic Equipment Service Technician

EEST 101 - Electrical Safety (4)

This course is an introduction to safety practices required when working in the electronic equipment environment. It also provides electrical safety for high power devices and safety in electronics assembly and working in the electronic equipment industry.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate effective lockout/tag out procedures
Discuss specific sources of fire and methods of prevention
Identify and list sources of potentially hazardous energy
List hazards of materials based on material data sheet(MDS)

EEST 102 - Applied Math (4)

This course is an introduction to mathematical theory and applications as they relate to the electronic circuits and the electronic equipment field. The math involves algebra, trigonometry, complex numbers, and number systems such as engineering notation.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply math principles used in electronics theory
Demonstrate the ability to use scientific calculators
Use the metric system to accurately measure, volume, time, and flow rates
Utilize and demonstrate exponential notation

EEST 103 - Electronics Principles I (5)

This course is an introduction to the theory and fundamentals of basic DC electronic circuits. Basic DC principles, principles of electricity, components, circuit measurements, electronic equipment such as oscilloscopes, multimeters, waveform generators, and DC power supplies.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply math principles used in electronics theory
Compare and contrast conductors, semiconductors and insulators
Define and explain relationships between voltage, current, and resistance
Explain basic electronic principles including Ohm's law and current flow

EEST 104 - DC Electronics (4)

This course is an introduction to the theory and fundamentals of basic DC electronic circuits with the use of electronic measurement and lab procedures. Topics include Ohm’s law, series and parallel circuits, circuit analysis techniques, and magnetism. We use MultiSim software as part of the lab assignments along with using proto board to build DC circuits

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Analyze series, parallel and combination circuits
Construct simple circuits using different electronic components with protoboard
Define direct current
Describe the relationship between magnetism and electricity
Operate DMM (Digital Multi-meter) to measure voltage, currents, resistors, and other devices

EEST 105 - AC Electronics (5)

This course is an introduction to the theory and fundamentals of basic AC electronic circuits with the use of electronic measurement and lab procedures. Topics include measurement of AC circuits, inductors and transformers, RL circuits, capacitors, RC circuits, RLC circuits, and frequency response and passive filters. Lab assignments include building AC circuits using function generators with passive components and using simulation software to build circuits

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Analyze circuits using alternating current Ohm's law
Compare and contrast frequency, period and wave length
Define alternating current (AC)
Identify difference between inductors, capacitors and transformers

EEST 106 - RLC Circuits (4)

This course is an introduction to the theory and fundamentals of the reactance of the inductor and the capacitor in the AC circuit. Introduction to vectors, complex numbers, resistive-inductive, resistive-capacitive, and resistive-inductive-capacitive circuits. It also covers inductive-capacitive circuit and resonance circuits.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Analyze capacitive, inductive reactance, phase angle, and impedance in a circuit
Analyze RL, RC, and RLC circuits
Categorize frequency response by filter type
Define basic operation of the inductor and the capacitor as it is used in AC electronic circuits

EEST 107 - Electronics Principles II (5)

This course is an introduction to the theory and fundamentals of basic AC electronic circuits as it applies to Ohm's Law and the understanding of basic transformer operation. Topics include measurement of AC circuits, inductors and transformers, RL circuits, capacitors, RC circuits, RLC circuits, and frequency response, and passive filters. This course also covers RL and RC circuit for pulse response and time constants.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Analyze circuits containing resistors, capacitors, and inductors
Discuss the process of filtration using high and low pass filters
Measure AC waveform parameter

EEST 108 - Electronic Devices I (4)

This course is an introduction to the theory and fundamentals of basic amplifiers and transistors. Topics include diodes, operation and biasing circuits, BJT amplifiers including types of amplifiers, Class A and B amplifiers, FET amplifiers including JFET, MOSFET, CMOS amplifiers.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Analyze diode and transistor circuits
Build, troubleshoot and test transistor amplifiers
Compare, contrast and construct half and full wave DC power supplies
Identify uses for diodes and transistors

EEST 109 - Electronic Devices II (4)

This course is an introduction to the theory and fundamentals of basic electronic devices: such as Diodes, Transistors, SCR, Triac, and FET. Other devices such as operational amplifiers, active filters, oscillators, switching circuits, voltage regulators, thyristors are also covered.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Compare and contrast field effect and bipolar transistors
Construct, troubleshoot and test IC amplifiers
Describe thyristor devices and their applications
Utilize operational amplifiers in a variety of configurations

EEST 110 - Introduction to Programmable Logic Controllers (5)

This course is an introduction to the theory and fundamentals of programmable logic controllers with emphasis on applying and using ladder logic programming. Topics include hardware components, number systems, fundamentals of logic, basic PLC programming using ladder logic, timer counter instructions, control instructions, data manipulation math instructions, sequencer shift register instructions. Lab includes using Allen-Bradley MicroLogicx 1000 to build ladder logic programs to perform basic tasks.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Apply Boolean logic and algebra
Program a PLC system to perform a task
Summarize the importance of the PLC in today's manufacturing and processing environments.

EEST 111 - Electronics Theory I (4)

This class provides a foundational understanding of DC circuits, covering Ohm's Law, Kirchhoff's Laws, and the function of basic electronic components like resistors, capacitors, and inductors. Students learn mathematical modeling techniques and explore concepts such as Thevenin's and Superposition theorems to simplify complex circuitry with emphasis on resistive networks. Hands-on activities and simulations software will be used to reinforce theoretical concepts.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Gain a solid theoretical understanding of fundamental concepts in DC circuits.
Identify and explain the function of basic electronic components.
Interpret color codes, descriptors and symbols used in DC circuits.
Apply Ohm’s law to explain the relation between voltage, current and resistance.
Develop proficiency in mathematical modeling of DC circuits, including translating circuit diagrams into mathematical equations.
Apply algebraic techniques to analyze and predict circuit behavior.
Ability to calculate power dissipation in resistive components and understand the concept of maximum power transfer in DC circuits.
Acquire the skill of using circuit design and simulation software tools such as NI Multisim for virtual experimentation and verification of theoretical concepts.
Explore real-world applications of DC circuits, such as power supply circuits, voltage regulators, and electronic devices, to understand the practical significance of the concepts learned in class.

EEST 112 - Electronics Laboratory I (5)

This class provides students with invaluable hands-on experience, reinforcing theoretical concepts and preparing them for real-world applications in electrical engineering and related fields. Students learn to construct DC circuits using breadboards and electronic components, honing their soldering skills and circuit prototyping techniques. They learn measurement techniques, instrumentation usage, and verification methods. Through design validation activities and lab reports, students document their findings and enhance their practical skills.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Become familiar with basic laboratory equipment such as breadboards, power supplies, multimeters, oscilloscopes, and function generators.
Develop skills in constructing and prototyping DC circuits on breadboards, including proper component placement, wiring techniques, and troubleshooting procedures.
Conduct experiments to verify Ohm's Law by measuring voltage, current, and resistance in simple resistor circuits.
Investigate series and parallel DC circuits by measuring voltages, currents, and resistances at various points in the circuit.
Verify Kirchhoff's laws by measuring currents at junctions and voltages around loops in complex DC circuits and confirming that they satisfy the laws.
Measure power dissipation in resistive components and investigate factors affecting the efficiency of DC circuits, such as voltage regulation and load characteristics.
Adhere to proper safety practices in the laboratory, including handling electrical equipment safely, identifying potential hazards, and mitigating risks.
Document experimental setups, procedures, observations, and results in laboratory notebooks, and prepare formal reports summarizing findings, analyses, and conclusions.

EEST 113 - Electronics Applied Math I (2)

In this course, students review and refresh on algebraic concepts and go beyond basic math skills to explore more advanced ways to understand circuits. They learn how to analyze circuits using techniques like nodal and mesh analysis. The focus is on mastering these methods so students can understand how circuits behave. Also, students learn practical skills like using scientific calculators and Excel spreadsheets. These tools help them analyze circuits better and solve problems more effectively.

Prerequisite: None. Corequisite: EEST 111, EEST 112. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
• Master advanced analysis techniques for RLC circuits, including nodal analysis, mesh analysis, and frequency domain analysis, with a supplementary review of trigonometry fundamentals.
• Apply analytical methods, incorporating trigonometric principles, to design and optimize RLC filters for specific frequency response characteristics, such as low-pass, high-pass, and band-pass filtering.
• Utilize simulation software to analyze the transient and steady-state behavior of RLC circuits, validating theoretical predictions and optimizing circuit performance, while integrating trigonometric functions where applicable.
• Develop proficiency in analyzing and interpreting experimental data from RLC circuit measurements, applying trigonometric principles to enhance analytical skills in circuit analysis and design.

EEST 114 - Electronics Theory II (4)

This course delves into the foundational principles of AC circuits, exploring sinusoidal waveforms, impedance, and phasors. From basic concepts to advanced theories, students will understand the behavior of RLC circuits and their applications in various fields, including signal processing and communication systems. Practical examples will illustrate the use of RLC circuits in filter design, emphasizing their role in frequency-selective signal processing.

Prerequisite: EEST 111, EEST 112, EEST 113. Corequisite: EEST 115, EEST 116. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Gain a comprehensive understanding of AC circuit fundamentals.
Interpret and analyze AC circuit behavior using Ohm's Law, Kirchhoff's Laws, and complex impedance concepts.
Develop proficiency in understanding and applying AC circuit theory through mathematical modeling and problem-solving exercises.
Understand the practical significance of AC circuit theory in various real-world applications such as power distribution, electronics, and communication systems.
Gain proficiency in analyzing RLC circuits and understanding their applications in signal processing and communication systems.
Interpret theoretical concepts to design RLC filters for specific frequency-selective signal processing requirements.
Apply theoretical knowledge to simulate and analyze RLC circuits using software tools, reinforcing understanding of their behavior in practical applications.

EEST 115 - Electronics Laboratory II (5)

This course involves laboratory sessions and experiments, students will explore the behavior of RLC circuits in both simulation and real-world settings. From designing and testing RLC filters to analyzing their frequency response and performance characteristics, students will develop essential skills in experimental design and data analysis. Utilizing circuit simulation software and measurement instruments, students will validate theoretical predictions and optimize RLC circuit designs for practical applications.

Prerequisite: EEST 111, EEST 112, EEST 113. Corequisite: EEST 114, EEST 116. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Gain hands-on experience with RLC circuits through laboratory sessions and experiments, applying theoretical knowledge to practical circuit design and measurement.
Design and implement RLC filters in laboratory settings, analyzing their frequency response and performance characteristics using measurement instruments.
Utilize circuit simulation software to simulate RLC circuits and compare simulation results with experimental measurements, reinforcing understanding of theoretical concepts.
Develop practical skills in troubleshooting and debugging RLC circuits, enhancing problem-solving abilities in experimental circuit design and analysis.

EEST 116 - Electronics Applied Math II (2)

This course sharpens problem-solving skills by mastering advanced analysis techniques for AC circuits, including nodal analysis, mesh analysis, and frequency domain analysis. With a focus on RLC circuits, students will analyze complex circuits containing resistors, inductors, and capacitors, gaining insights into their transient and steady-state behavior. Emphasis will be placed on the design and analysis of RLC filters, exploring their applications in signal conditioning, audio processing, and communication systems.

Prerequisite: EEST 111, EEST 112, EEST 113.
Corequisite: EEST 114, EEST 115. Crosslisted as: N/A.
Offered: Winter, Summer.

Outcomes
Master advanced analysis techniques for RLC circuits, including nodal analysis, mesh analysis, and frequency domain analysis, with a supplementary review of trigonometry fundamentals.
Apply analytical methods, incorporating trigonometric principles, to design and optimize RLC filters for specific frequency response characteristics, such as low-pass, high-pass, and band-pass filtering.
Utilize simulation software to analyze the transient and steady-state behavior of RLC circuits, validating theoretical predictions and optimizing circuit performance, while integrating trigonometric functions where applicable.
Develop proficiency in analyzing and interpreting experimental data from RLC circuit measurements, applying trigonometric principles to enhance analytical skills in circuit analysis and design.

EEST 206 - Emerging Technologies (3)

This course is an introduction and an exploration of emerging technology for example; the internet of things, augmented reality, brain interfaces, microchip implant, magnetic refrigeration, wireless charging, among others. Course content may vary according to technology advances. Students will choose their topic of interest for a research and presentation project.

Distribution: Career Training. Offered: 6.

Outcomes
Appraise the possible impact of a new technology in the industry
Present a research project to an audience
Research and write a paper on a new technology

EEST 207 - Introduction to Networking (5)

This course is an introduction to the theory and fundamentals of networking including IP addressing, network architectures, layers, and protocols.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Define the basic theory of networking
Differentiate between the types of IP addresses and functions
Identify and list the function of IP addresses

EEST 208 - Introduction to Embedded Controllers (5)

This course is an introduction to the theory and fundamentals of embedded controllers using PIC or other processors and C programming language.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Define the difference between application and embedded programming
Define various processors types
Explain the basic theory of embedded controllers
List the difference between application and embedded programming
Program embedded C programming language

EEST 210 - Capstone Project (5)

This course offers students an opportunity to work on a final project that is a culmination of the theory presented during the student time in the program. The project is

determined by both the instructor and student and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: 6.

Outcomes
Apply knowledge and skills learned through classroom training to build and trouble shoot an electronics project.
Demonstrate and present the Capstone project to the class

EEST 221 - Electronic Principles -RFID (4)

This course is an introduction to the theory and fundamentals of RFID Technology. Topics include RFID system lifecycle, frequency ranges, antennas, tags and interrogators and applications

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe and identify the basic fundamentals of RFID systems
Differentiate tags and interrogators and their functions
Distinguish the frequency ranges of RFID devices and antennas

EEST 222 - Introduction to Fiber Optic Communications (5)

This course is an introduction to the theory and fundamentals of Fiber Optics, Electronic Communications and basic antenna systems.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Explain antenna and satellite communications
Explain modulation techniques such as AM, FM, ASK, FSK, PSK, etc.
Explain the basic theory of electronic communications
Perform basic electronic communication lab experiments

EEST 223 - Introduction to Digital Systems (5)

This course is an introduction to the theory and fundamentals of digital systems including number systems, Boolean algebra, combinational logic, and digital logic.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Apply Boolean algebra formulas and Karnaugh maps to PLC systems
Explain functions of combinational logic
Explain the basic theory of digital systems
Perform basic digital electronic lab experiments

EEST 224 - Introduction to Wireless Communications (4)

This course is an introduction to the theory and fundamentals of Wireless Communications including modulation techniques, error correcting codes, cellular systems, and wireless LAN.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Compare wireless LAN protocols and their layer structure
Differentiate between cell phone carriers, and their protocols, etc.
Explain Bluetooth applications
Explain the basic theory of wireless communications

EEST 225 - Introduction to Microprocessors (4)

This course is an introduction to the theory and fundamentals of Microprocessors including digital signal processing and conversion methods.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Contrast different types of microprocessors in industry
Employ programming techniques and explain C programming language
Explain microprocessors architectures and application
Explain the basic theory of microprocessors

EEST 291 - Practical Applications (1-13V)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project I
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

EEST 292 - Independent Project I (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project l.

Distribution: Career Training.

Outcomes
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project I
Demonstrate effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.
Practice professionalism ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

EEST 293 - Independent Project II (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project lI.

Distribution: Career Training.

Outcomes
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project II
Demonstrate effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Practice professionalism ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

EEST 294 - Independent Project III (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project emphasis on integration of classroom learning based on prior course work and should result in the achievement of advanced skills in completion of independent project lII.

Distribution: Career Training.

Outcomes
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project III
Demonstrate effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

EEST 296 - Work-Based Learning Exp (1-13V)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.

EEST 297 - Work-Based Learning Exp Sem (2)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training.

Outcomes
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Analyze and resolve problems that arise in completing assigned tasks.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.

ELCON-Electrical Construction

ELCON 101 - Introduction to Electrical Construction (3)

This course is an introduction to Electrical Construction, with a strong emphasis on occupationally specific safety guidelines and standards. Students will learn to apply safety principles, complete safety checklists, and adhere to OSHA/WISHA and NFPA 70E guidelines. The course also prepares students for the physical demands of the job, including physical strength, stamina, and agility, while highlighting the role of an electrician in diverse job sites and teaching them to identify and address hazardous conditions.

Distribution: Career Training. Corequisite: This course must be taken the first quarter of the program and must be taken in conjunction with ELCON 102, ELCON 103 and ELCON 104. Offered: Fall, Spring.

Outcomes
Apply safety principles specific to electrical construction.
Complete comprehensive electrical safety checklists.
Follow OSHA/WISHA and NFPA 70E guidelines rigorously.
Identify hazardous conditions on the job site.
Recognize the role of an electrician in a Diverse Jobsite.
Solve electrical safety problems effectively.
Prepare for the physical demands of the job, including developing physical strength, stamina, and agility.

ELCON 102 - Applied Physical Science (5)

This course introduces physical sciences with a focus on their applications in the electrical field. Students will explore fundamental concepts such as electrical theory, Ohm's Law, and the relationships between current, resistance, and voltage. Through practical exercises and theoretical study, students will gain a solid understanding of how these principles govern electrical systems.

Distribution: Career Training. Corequisite: This course must be taken the first quarter of the program and must be taken in conjunction with ELCON 101, ELCON 103 and ELCON 104. Offered: Fall, Spring.

Outcomes
Apply OHMS Law formula
Solve parallel circuits
Solve series circuits

ELCON 103 - Hand and PowerTools (4)

In this course, students are introduced to the wide array of tools, equipment, and processes commonly used in the electrical industry. Emphasis is placed on the safe operation, care, and maintenance of various hand tools, power tools, and specialty tools. Students will gain practical experience and knowledge in using and maintaining these tools, ensuring they are proficient in assessing the condition and functionality of all equipment.

Distribution: Career Training. Corequisite: This course must be taken the first quarter of the program and must be taken in conjunction with ELCON 101, ELCON 102 and ELCON 104. Offered: Fall, Spring.

Outcomes
Use common electrical field specialty tools
Use residential and low voltage tools and equipment
Use specialty power, test and measurement equipment
Use/maintain hand tools

ELCON 104 - Electrical Service Installation (4)

This course focuses on the installation of essential service components in electrical systems, providing students with a comprehensive understanding of their connection to the grid. Through hands-on training, students will learn to install load centers, overcurrent protection devices, and terminate wires, ensuring they develop the necessary skills to contribute effectively in residential and commercial electrical installations. Safety protocols, including the proper usage of personal protective equipment (PPE), will be emphasized throughout practical exercises to instill a culture of safety in all electrical installations.

Distribution: Career Training. Corequisite: This course must be taken the first quarter of the program and must be taken in conjunction with ELCON 101, ELCON 102 and ELCON 103. Offered: Fall, Spring.

Outcomes
Install and terminate conductors
Install basic service components
Install home runs to load center
Install over current protection devices

ELCON 105 - Electrical Components (4)

In this course, students learn the essential skills of selecting appropriate electrical components for various applications. Emphasis is placed on choosing the correct size load centers, conductor sizes for load centers, and overcurrent protective devices. Through practical exercises and theoretical study, students gain the knowledge necessary to make informed decisions regarding electrical component selection.

Distribution: Career Training. Prerequisite: ELCON 101 ELCON 102 ELCON 103 ELCON 104. Corequisite: This course must be taken the second quarter of the program and must be taken in conjunction with ELCON 106, ELCON 107 and ELCON 108. Offered: Winter, Summer.

Outcomes
Identify electrical boxes and enclosures
Identify home run paths
Identify/select conductors
Identify/select over current conductors

ELCON 106 - Introduction to Residential Wiring (3)

This course serves as an introduction to the fundamental principles of residential wiring, covering essential methods, materials, and techniques required for successful residential wiring installations. Through theoretical instruction and hands-on practice, students will understand the principles and practices that govern residential electrical systems and correct usage of personal protective equipment (PPE).

Distribution: Career Training. Prerequisite: ELCON 101 ELCON 102 ELCON 103 ELCON 104. Corequisite: This course must be taken the second quarter of the program and must be taken in conjunction with ELCON 105, ELCON 107 and ELCON 108. Offered: Winter, Summer.

Outcomes
Add supplemental load centers to existing panels
Charge out existing load centers

ELCON 107 - National Electric Code (4)

This course provides an in-depth exploration of the National Electric Code (NEC) and its crucial role in ensuring the safe installation of electrical conductors, devices, and utilization equipment connected to the electrical grid. Through comprehensive study and practical application, students will gain a thorough understanding of NEC requirements and their application in real-world scenarios.

Distribution: Career Training. Prerequisite: ELCON 101 ELCON 102 ELCON 103 ELCON 104. Corequisite: This course must be taken the second quarter of the program and must be taken in conjunction with ELCON 105, ELCON 106 and ELCON 108. Offered: Winter, Summer.

Outcomes
Follow/apply electric Code requirements to job site
Locate information in the national electric code

ELCON 108 - NFPA 70E Standards (4)

In this course, students engage in a thorough examination

of NFPA 70E Standards and their critical importance in promoting safety within the electrical grid. Through in-depth study and practical application, students will gain a comprehensive understanding of NFPA 70E Standards and their practical implications for maintaining a safe work environment in the electrical field.

Distribution: Career Training. Prerequisite: ELCON 101 ELCON 102 ELCON 103 ELCON 104. Corequisite: This course must be taken the second quarter of the program and must be taken in conjunction with ELCON 105, ELCON 106 and ELCON 107. Offered: Winter, Summer.

Outcomes
Comprehensive study of NFPA 70 E standards and its safety applications to the electrical field

ELCON 109 - Residential Design (3)

This course focuses on the practical application of national and regional electrical codes in the context of residential building design. Through hands-on exercises and theoretical instruction, students will learn how to effectively apply codes and standards to residential electrical systems, ensuring compliance and safety.

Distribution: Career Training. Prerequisite: ELCON 105 ELCON 106 ELCON 107 ELCON 108. Corequisite: This course must be taken the third quarter of the program and must be taken in conjunction with ELCON 110, ELCON 111, ELCON 112 and ELCON 113. Offered: Fall, Spring.

Outcomes
Design and size a residential service
Install a residential service

ELCON 110 - Residential Wiring Techniques (3)

Building upon ELCON 106, this course dives into advanced residential wiring techniques, covering topics like planning, conductor sizing, tool usage, and the bidding permitting process.

Distribution: Career Training. Prerequisite: ELCON 105 ELCON 106 ELCON 107 ELCON 108. Corequisite: This course must be taken the third quarter of the program and must be taken in conjunction with ELCON 109, ELCON 111, ELCON 112 and ELCON 113. Offered: Fall, Spring.

Outcomes
Install low voltage wiring systems in a residence
Interact effectively with a Diverse group of Customers, Trades, and Industry Partners.
Locate and install receptacle, switch and lighting outlets

ELCON 111 - Systems Troubleshooting (3)

This course provides students with practical experience in applying basic troubleshooting techniques to address electrical issues in residential buildings. Students will learn to identify, analyze, and resolve common electrical problems, enhancing their diagnostic skills and their ability to ensure the safe and efficient operation of residential electrical systems.

Distribution: Career Training. Prerequisite: ELCON 105 ELCON 106 ELCON 107 ELCON 108. Corequisite: This course must be taken the third quarter of the program and must be taken in conjunction with ELCON 109, ELCON 110, ELCON 112 and ELCON 113. Offered: Fall, Spring.

Outcomes
Student will recognize and troubleshoot problems that arise from the use of electricity

ELCON 112 - Introduction to Blueprint Reading (3)

This course introduces students to basic concepts of blueprint reading with emphasis on terminology, symbols, and lines commonly found on electrical schematics and plans.

Distribution: Career Training. Prerequisite: ELCON 105 ELCON 106 ELCON 107 ELCON 108. Corequisite: This course must be taken the third quarter of the program and must be taken in conjunction with ELCON 109, ELCON 110, ELCON 111 and ELCON 113. Offered: Fall, Spring.

Outcomes
Determine specific dimensions on a building plan using an architects scale
Identify architectural symbols found on residential plans
Interpret residential building blueprint plans

ELCON 113 - Blueprint Reading Applications (5)

A continuation of the concepts introduced in ELCON 112, students learn to interpret prints found in a set of construction drawings and understand their relationship to various electrical installations.

Distribution: Career Training. Prerequisite: ELCON 105 ELCON 106 ELCON 107 ELCON 108. Corequisite: This course must be taken the third quarter of the program and must be taken in conjunction with ELCON 109, ELCON 110, ELCON 111 and ELCON 112. Offered: Fall, Spring.

Outcomes
Compute voltage drops
DE terming lighting loads
Determine branch circuit loads

ELCON 114 - New Residential Technologies (4)

In this course, students will learn to apply the National Electrical Code (NEC) to Photovoltaic (PV) designs and understand the principles of wireless components for smart home technologies and smart houses. The curriculum covers Energy Management Systems (EMS) and Green Wiring practices, emphasizing sustainable installations. Students will gain hands-on experience with installing and configuring smart panels in residential environments and smart houses, optimizing energy usage through advanced technology.

Distribution: Career Training. Prerequisite: ELCON 109 ELCON 110 ELCON 111 ELCON 112 ELCON 113. Corequisite: This course must be taken the fourth quarter of the program and must be taken in conjunction with ELCON 201, ELCON 202 and ELCON 203. Offered: Winter, Summer.

Outcomes
Design new residential electrical technology systems
Install new residential electrical technology systems
Troubleshoot and repair new residential electrical technology systems

ELCON 201 - Specialty Tools (4)

In this course, students gain hands-on experience operating a wide range of specialty tools used in the electrical field. This includes various power tools, testing and measurement equipment, and commercial and industrial equipment. Emphasis is placed on the proper use, maintenance, and safety protocols associated with these tools, ensuring students are well-prepared to handle advanced electrical tasks in both commercial and industrial settings.

Distribution: Career Training. Prerequisite: ELCON 109 ELCON 110 ELCON 111 ELCON 112 ELCON 113. Corequisite: This course must be taken the fourth quarter of the program and must be taken in conjunction with ELCON 114, ELCON 202 and ELCON 203. Offered: Winter, Summer.

Outcomes
Use commercial / industrial tools and equipment
Use electrical specialty tools common to commercial and industrial wiring
Use specialty power, test and measurement equipment
Use/maintain hand tools

ELCON 202 - Commercial Wiring (3)

This course is an introduction to Commercial Wiring, focusing on the unique aspects and requirements of commercial electrical installations. Students will learn to handle different voltages, phases, and types of raceways specific to commercial environments. The course prepares students in various essential skills including reading blueprints, wiring techniques, conduit bending, motor control circuits, and troubleshooting, preparing students towards the EL01 electrical license

Distribution: Career Training. Prerequisite: ELCON 109 ELCON 110 ELCON 111 ELCON 112 ELCON 113. Corequisite: This course must be taken the fourth quarter of the program and must be taken in conjunction with ELCON 114, ELCON 201, and ELCON 203. Offered: Winter, Summer.

Outcomes
Bend conduit
Determine ampacity of conductors
Determine conduit fill requirements
Identify materials for commercial installations
Identify transformer requirements
Install load centers
Rough in commercial projects

ELCON 203 - Commercial Codes and Regulations (3)

Following the Commercial Wiring course, the Commercial Codes and Regulations course provides students with a comprehensive understanding of essential national and local electrical codes pertinent to commercial buildings. The curriculum covers fundamental regulations, ensuring that students understand how to comply with industry standards and legal requirements for commercial electrical installations.

Distribution: Career Training. Prerequisite: ELCON 109 ELCON 110 ELCON 111 ELCON 112 ELCON 113.

Corequisite: This course must be taken the fourth quarter of the program and must be taken in conjunction with ELCON 114, ELCON 201, ELCON 202. Offered: Winter, Summer.

Outcomes
Follow / apply NEC and NFPA 70E safety requirements
Locate information in the national electric code

ELCON 204 - Commercial Material Identification (3)

This course introduces students to the specific construction materials used in commercial electrical installations, including the components of grid systems. Students will learn to identify and understand the application of various materials essential for commercial projects, ensuring compliance with industry standards and enhancing their practical skills in material selection and usage.

Distribution: Career Training. Prerequisite: ELCON 114 ELCON 201 ELCON 202 ELCON 203. Corequisite: This course must be taken the fifth quarter of the program and must be taken in conjunction with ELCON 205, ELCON 206, ELCON 207, and ELCON 208. Offered: Fall, Spring.

Outcomes
Identify / select conductors
Identify / select over current protective devices
Identify electrical boxes, enclosures and conduits
Identify home run paths

ELCON 205 - Commercial Installation (3)

This course focuses on installation standards specific to commercial buildings. Students will learn to install different voltages, phases, and types of raceways specific to commercial environments, starting from the grid. Additionally, the curriculum covers a comprehensive range of topics including wiring techniques, load calculations, equipment installation, and safety protocols tailored to commercial settings. Through hands-on training and theoretical study, students will develop the skills necessary to execute successful commercial electrical installations while adhering to industry standards and regulations.

Distribution: Career Training. Prerequisite: ELCON 114 ELCON 201 ELCON 202 ELCON 203. Corequisite: This course must be taken the fifth quarter of the program and must be taken in conjunction with ELCON 204, ELCON 206, ELCON 207, and ELCON 208. Offered: Fall, Spring.

Outcomes
Identify and install conductors
Identify and install electrical boxes, enclosures and conduits
Identify and install home run paths
Identify and install over current protective devices

ELCON 206 - Industrial Wiring (3)

This course serves as an introduction to industrial wiring, covering the principles and techniques essential for electrical installations in industrial settings. Students will learn about the installation of rigid conduit and how to protect wiring systems from chemical and physical hazards commonly found in industrial environments. Through hands-on training and theoretical study, students will develop the skills needed to perform industrial wiring safely and efficiently.

Distribution: Career Training. Prerequisite: ELCON 114 ELCON 201 ELCON 202 ELCON 203. Corequisite: This course must be taken the fifth quarter of the program and must be taken in conjunction with ELCON 204, ELCON 205, ELCON 207, and ELCON 208. Offered: Fall, Spring.

Outcomes
Identify / select conductors
Identify / select over current protective devices
Identify electrical boxes, enclosures and conduits
Identify home run paths

ELCON 207 - Industrial Material Identification (3)

This course focuses on identifying materials commonly used in industrial electrical installations. Students will learn to recognize and select appropriate materials for industrial wiring projects, considering factors such as durability, conductivity, and resistance to environmental hazards. Additionally, the curriculum covers the properties and applications of materials used in industrial electrical systems, preparing students to make informed decisions in material selection

Distribution: Career Training. Prerequisite: ELCON 114 ELCON 201 ELCON 202 ELCON 203. Corequisite: This course must be taken the fifth quarter of the program and must be taken in conjunction with ELCON 204, ELCON 205, ELCON 206, and ELCON 208. Offered: Fall, Spring.

Outcomes
Identify / select conductors
Identify / select over current protective devices
Identify electrical boxes, enclosures and conduits
Identify home run paths/materials

ELCON 208 - Industrial Installation (3)

In this course, students will apply their knowledge of industrial wiring principles and material identification to perform electrical installations in industrial settings. The curriculum emphasizes practical skills such as equipment installation, wiring techniques, and adherence to safety protocols. Students will gain hands-on experience in executing industrial wiring projects, including the installation of rigid conduit and implementation of measures to protect wiring systems from chemical and physical hazards.

Distribution: Career Training. Prerequisite: ELCON 114 ELCON 201 ELCON 202 ELCON 203. Corequisite: This course must be taken the fifth quarter of the program and must be taken in conjunction with ELCON 204, ELCON 205, ELCON 206, and ELCON 207. Offered: Fall, Spring.

Outcomes
Identify material for industrial installation
Make rigid conduit threads
Rough-in industrial projects

ELCON 209 - Industrial Hazards (3)

In this course, students are introduced to industrial-specific safety hazards and learn techniques to mitigate risks effectively. The curriculum covers a range of topics including industrial safety techniques, lock-out/tag-out procedures, and hazard recognition and avoidance. Through theoretical study and practical exercises, students will develop the knowledge and skills necessary to ensure a safe working environment in industrial settings.

Distribution: Career Training. Prerequisite: ELCON 204 ELCON 205 ELCON 206 ELCON 207 ELCON 208. Corequisite: This course must be taken the sixth quarter of the program and must be taken in conjunction with ELCON 210, ELCON 211, and ELCON 212. Offered: Winter, Summer.

Outcomes
Industrial safety techniques
Lock-out, tag-out procedures
To recognize and avoid industrial hazards

ELCON 210 - Motors and Controllers (4)

This course provides an introduction to electrical motors and the various methods for starting, stopping, and controlling them in electrical installations. Students will gain an understanding of motor operation principles and practical skills in servicing common contactors, starters, and typical motors. Additionally, the curriculum covers the wiring of two and three-wire control circuits. This course covers essential knowledge and skills required for motor-related tasks commonly encountered in the electrical field.

Distribution: Career Training. Prerequisite: ELCON 204 ELCON 205 ELCON 206 ELCON 207 ELCON 208. Corequisite: This course must be taken the sixth quarter of the program and must be taken in conjunction with ELCON 209, ELCON 211, and ELCON 212. Offered: Winter, Summer.

Outcomes
Service common contactors, starters and typical motors
Wire two and three wire control circuits

ELCON 211 - Project Estimation (5)

This course introduces the basics of jobsite estimation, covering material estimation, labor, and time management techniques. Students will learn how a contractor might estimate costs for residential, commercial, and industrial projects, including factors such as material quantities, labor requirements, and project timelines. Through theoretical study and practical exercises, students will develop the skills necessary to accurately estimate project costs and effectively manage resources.

Distribution: Career Training. Prerequisite: ELCON 204 ELCON 205 ELCON 206 ELCON 207 ELCON 208. Corequisite: This course must be taken the sixth quarter of the program and must be taken in conjunction with ELCON 209, ELCON 210, and ELCON 212. Offered: Winter, Summer.

Outcomes
Estimate and bid projects

ELCON 212 - Control Circuits (3)

This course delves deeper into the study of electrical circuits and systems, focusing on control circuits used to operate various devices, particularly motors. Students will replicate and understand the principles behind different methods of motor control, including building special control circuits, for example time delay, and wiring start/stop stations. The curriculum covers characteristics of programmable controllers, common input/output devices, and assembly of push buttons. Additionally, students will explore the integration of control circuits with smart systems for enhanced automation.

Distribution: Career Training. Prerequisite: ELCON 204 ELCON 205 ELCON 206 ELCON 207 ELCON 208. Corequisite: This course must be taken the sixth quarter of the program and must be taken in conjunction with ELCON 209, ELCON 210, and ELCON 211. Offered: Winter, Summer.

Outcomes
Build special control circuits
Discuss characteristics of programmable controllers
Distinguish between common input/output devices
Identify parts and assembly of push buttons
Wire start/ stop buttons from computerized designs

ELCON 213 - Motors and Controllers Applications (3)

This course provides hands-on training in building, wiring, and troubleshooting various types of motors and controllers. Students will learn essential techniques for motor installation and maintenance, with a focus on practical applications in industrial and commercial settings. Additionally, participants will be instructed on the proper use of personal protective equipment (PPE) to ensure safety during practical exercises and real-world applications.

Distribution: Career Training. Prerequisite: ELCON 209 ELCON 210 ELCON 211 ELCON 212. Corequisite: This course must be taken the seventh quarter of the program and must be taken in conjunction with ELCON 214, ELCON 215, and ELCON 216. Offered: Fall, Spring.

Outcomes
Design special control circuits
Design three wire start/stop stations
Wire two and three wire control circuits

ELCON 214 - Transformers (3)

This course offers students a comprehensive understanding of electrical transformers, delving into their fundamental principles, necessity, installation procedures, and operational mechanisms. Throughout the course, participants will explore the vital role transformers play in electrical systems, gaining insights into the distribution, utilization, and grid integration of various voltage levels. In addition to mastering proper utilization of personal protective equipment (PPE), the basics of transformer technology, students will examine the intricacies involved in handling different voltage configurations, equipping them with the skills necessary for effectively managing electrical transformations across diverse applications.

Distribution: Career Training. Prerequisite: ELCON 209 ELCON 210 ELCON 211 ELCON 212. Corequisite: This course must be taken the seventh quarter of the program and must be taken in conjunction with ELCON 213, ELCON 215, and ELCON 216. Offered: Fall, Spring.

Outcomes
Install proper size transformer
Select the proper voltage transformer
Wire transformers

ELCON 215 - Advanced Motor Controls (3)

This course provides an in-depth exploration of cutting-edge motor control techniques, focusing on advanced concepts such as variable frequency drives (VFDs) and programmable logic controllers (PLCs). Participants will delve into the intricacies of VFD programming and wiring, gaining proficiency in harnessing the capabilities of smart frequency drives. The course also introduces PLCs, laying the foundation for understanding their role in modern motor control systems.

Distribution: Career Training. Prerequisite: ELCON 209 ELCON 210 ELCON 211 ELCON 212. Corequisite: This course must be taken the seventh quarter of the program and must be taken in conjunction with ELCON 213, ELCON 214, and ELCON 216. Offered: Fall, Spring.

Outcomes
Define how to program frequency drives
Define how to wire frequency drives
Introduction to Programmable logic

ELCON 216 - New Technology Commercial (4)

This course equips students with the skills to apply the NEC to Photovoltaic (solar) and wind (renewable) energy designs, integrating wireless components for smart commercial technologies. The course covers Energy Management Systems and Green Wiring practices for sustainable installations. Students will learn to design, install, troubleshoot, and repair advanced commercial electrical systems, ensuring compliance and efficiency. Students will be trained in the proper use of personal protective equipment (PPE) to maintain safety standards during practical exercises and installations.

Distribution: Career Training. Prerequisite: ELCON 209 ELCON 210 ELCON 211 ELCON 212. Corequisite: This course must be taken the seventh quarter of the program and must be taken in conjunction with ELCON 213, ELCON 214, and ELCON 215. Offered: Fall, Spring.

Outcomes
Design new commercial electrical technology systems
Install new commercial electrical technology systems
Troubleshoot and repair new commercial electrical technology systems

ELCON 224 - Advanced Projects I

Students have the opportunity independently to undertake electrical construction projects, collaboratively determined by the instructor and student. Building on prior coursework, these projects facilitate advanced learning and application of knowledge and skills. Throughout the course, students learn from mentors who mirror industrial practices, thereby preparing them with the practical skills needed for employment in the electrical industry.

Distribution: Career Training. Offered: Spring, Summer.

Outcomes
Begin to demonstrate workplace Professionalism to Industry Standards.
Begin to take direction from Supervisor regardless of their Identity Category.

ELCON 225 - Advanced Projects II

Students have the opportunity independently to undertake electrical construction projects, collaboratively determined by the instructor and student. Building on prior coursework, these projects facilitate advanced learning and application of knowledge and skills. Throughout the course, students learn from mentors who mirror industrial practices, thereby preparing them with the practical skills needed for employment in the electrical industry.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Reliably demonstrate workplace Professionalism to Industry Standards.
Reliably take direction from Supervisor regardless of their Identity Category.

ELCON 226 - Advanced Projects III

Students have the opportunity independently to undertake electrical construction projects, collaboratively determined by the instructor and student. Building on prior coursework, these projects facilitate advanced learning and application of knowledge and skills. Throughout the course, students learn from mentors who mirror industrial practices, thereby preparing them with the practical skills needed for employment in the electrical industry.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Reliably demonstrate workplace Professionalism to Industry Standards.
Reliably take direction from Supervisor regardless of their Identity Category.

ELCON 227 - Advanced Projects IV

Students have the opportunity independently to undertake electrical construction projects, collaboratively determined by the instructor and student. Building on prior coursework, these projects facilitate advanced learning and application of knowledge and skills. Throughout the

course, students learn from mentors who mirror industrial practices, thereby preparing them with the practical skills needed for employment in the electrical industry.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Reliably demonstrate workplace Professionalism to Industry Standards.
Reliably take direction from Supervisor regardless of their Identity Category.

ENGL-English

ENGL& 101 - English Composition I (5)

An introduction to college writing emphasizing rhetorical concepts, critical thought, and research skills with attention to effectively engaging a variety of audiences.

Prerequisite: Placement or ENGL 91, minimum grade of 2.0 or above. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply strategies for reading, pre-writing, drafting, reviewing, collaborating, revising, editing, and submitting texts by assigned deadlines.
Evaluate a variety of media and technologies to address a range of audiences.
Describe a variety of rhetorical concepts to analyze and compose a variety of texts.
Use appropriate linguistic structures, including grammar, punctuation, and spelling in written texts.
Apply common formats and conventions for ethically using, citing, and documenting a variety of texts.

ENGL 175 - Professional Writing (5)

Enables students in career training programs to think logically and clearly and be effective and convincing in their professional and technical writing. It focuses on development of communication skills essential in a variety of forms of professional writing and technical writing.

Prerequisite: Placement or ENGL 090.

Outcomes
Be able to write an effective professional letter
Distinguish between the various types of technical/professional writing
Incorporate sentences that are clear, direct and specific in their technical/professional writing
To understand the role of and how and when to use graphics in technical/professional writing
Understand the basic elements of and be able to write an effective extended definition
Understand the basic elements of and be able to write an effective feasibility proposal or technical reportn
Understand the basic elements of and be able to write an effective set of instructions
Understand the basic elements of and be able to write a technical description
Use correct grammar, spelling and punctuation in students' technical-professional writing

ENGL& 235 - Technical Writing (5)

Advanced written communication course emphasizing writing for technical and business purposes, organizing data, using research tools, presenting and submitting technical documents using various media, and effectively collaborating on team projects.

Prerequisite: Placement or completion of ENGL& 101 with 2.0 grade or better. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Use a writing process (pre-writing/drafting/revising) to develop technical documents that effectively address different audiences.
Apply methods of research and documentation to technical topics and properly synthesize and integrate source material with one’s own ideas.
Describe technical writing concepts and vocabulary.
Create a clear and accurate set of technical documents for a variety of purposes related to writing in the workplace.
Practice and develop collaboration skills by producing effective technical documents or presentations as a member of a team.

Below 100

ENGL 90 - English Fundamentals (5)

A developmental writing course emphasizing foundational English sentence and paragraph skills with attention to reflective reading, vocabulary, grammar, and mechanics.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Develop and apply critical reading skills to select published texts.
Construct several sentence types using correct grammar, punctuation, and spelling.
Construct organized and cohesive paragraphs using a specific rhetorical mode.
Evaluate and model appropriate language and voice for a variety of intended audiences.
Explore and clarify writing ideas on a variety of topics.
Identify and describe the parts of speech that make up standard English.
Describe the purpose and use of proper documentation and citation styles.

ENGL 91 - Integrated Reading and Writing (5)

A developmental writing course emphasizing critical reading, information literacy, and expository writing skills.

Prerequisite: Placement or ENGL 90, minimum 2.0 grade or better. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply critical reading skills to a variety of published trade or professional texts.
Adapt specific rhetorical concepts to construct organized and cohesive short essays.
Develop effective strategies for planning, drafting, revising, and proofreading a draft.
Apply proper documentation and citation styles.
Evaluate a variety of resources to assist in researching a variety of topics.

ENGL 98 - English Composition Corequisite Support (2)

This course delivers corequisite support for ENGL& 101 by providing supplemental instruction in college-level critical reading and composition skills alongside intensive, hands-on activities including draft workshopping and student conferencing. Requires concurrent enrollment in a linked section of ENGL& 101.

Prerequisite: none. Corequisite: ENGL& 101 English Composition I. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify strategies for critical reading and note-taking.
Recognize and define the steps of the writing process (including pre-writing, outlining, drafting, and revising).
Examine a variety of texts as examples of effective written communication.
Demonstrate appropriate linguistic structures, including grammar, punctuation, and spelling.
Draft, revise, and reflect on a variety of written assignment work.

ENGR-Engineering

ENGR& 111 - Engineering Graphics I (5)

This course is designed for students enrolled in an engineering program who need to learn the basic concepts of engineering graphics. Topics include two dimensional CAD use of lettering, scale, geometric construction, drawing layout, orthographic or multiview drawings and dimensioning. This course also introduces the concepts of 3-D Computer aided Drafting (CAD) solid modeling design and its application to engineering drawing.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Describe the interrelationships and roles of diverse engineering technology technicians in the various engineering fields.
Use basic engineering vocabulary to discuss design ideas and engineering solutions.
Interpret blueprint standards and the line types and symbols that comprise them
Describe how specifications and dimensions are used and portrayed on engineering graphics.
Define the interrelationship of engineering graphics that comprise a project.
Create basic geometric shapes using drafting equipment/software.

ENGR& 112 - Engineering Graphics II (5)

This course is an introduction to basic dimensioning techniques using mechanical orthographic, architectural plans, and civil plat drawings. Students will create manufacturing and construction drawings using industry level dimensioning techniques relating to mechanical architectural and civil disciplines applying ASME and AIA standards. This course also introduces the concepts of 2D and 3D Computer Aided Design (CAD) and its application to engineering drawing. AMATH 170 (as pre or corequisite), ENGR 111 (as a pre or corequisite), or

instructor permission.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Describe components of effective teamwork with diverse peers in a lab setting
Describe the purpose of design drawings used in an engineering environment.
Create and edit CAD engineering drawings using a dynamic input interface.
Annotate CAD engineering drawings to meet industry standards and best practices.
Create different linear and angular dimensions on objects in CAD engineering drawings.
Apply advanced CAD techniques to reusable content, hatch objects, drawing object creation and plots.

ENGR 191 - Engineering Technology Study Lab I (1)

Students meet with their cohort once a week in a lab setting for personalized support from instructors to complete contextualized projects spanning the first quarter's engineering coursework. Additional career preparation training and resources will be provided as students progress toward graduation. College navigation topics, including financial aid, workforce funding, childcare, library services. Soft skill topics of "coping with pressure" and "decision making".

Distribution: Career Training.

ENGR 192 - Engineering Technology Study Lab II (1)

Students meet with their cohort once a week in a lab setting for personalized support from instructors to complete contextualized projects spanning the second quarter's engineering coursework. Additional career preparation training and resources will be provided as students progress toward graduation. Create a social media profile that is geared towards employment. Soft skill topics of "drive for excellent results" and "cooperative teamwork"

Distribution: Career Training. Prerequisite: ENGR191.

ENGR 193 - Engineering Technology Study Lab III (1)

Students meet with their cohort once a week in a lab setting for personalized support from instructors to complete contextualized projects spanning the third quarter's engineering coursework. Additional career preparation training and resources will be provided as students progress toward graduation. Cover letters, resume, and related employment documents prepared. Complete mock interviews and receive feedback. Soft skill topics of "initiative" and "flexibility".

Distribution: Career Training. Prerequisite: ENGR192.

ENGR 194 - Engineering Technology Study Lab IV (1)

Students meet with their cohort once a week in a lab setting for personalized support from instructors to complete contextualized projects spanning the fourth quarter's engineering coursework. Additional career preparation training and resources will be provided as students progress toward graduation. Apply for internships, attend local networking or online gatherings. Participate in industry related discussions either through discussion groups or social media. Soft skill topics of "influential communication" and "continuous learning".

Distribution: Career Training. Prerequisite: ENGR193.

ENGR 195 - Engineering Technology Study Lab V (1)

Students meet with their cohort once a week in a lab setting for personalized support from instructors to complete contextualized projects spanning the fifth quarter's engineering coursework. Additional career preparation training and resources will be provided as students progress toward graduation. Complete applications to transfer colleges or employers. Soft skill topics of "decision-making" and "strategic vision".

Distribution: Career Training. Prerequisite: ENGR194.

ENGR 196 - Engineering Technology Study Lab VI (1)

Students meet with their cohort once a week in a lab setting for personalized support from instructors to complete contextualized projects spanning the sixth quarter's engineering coursework. Additional career preparation training and resources will be provided as students progress toward graduation. Use feedback and finalize resumes, cover letters, polished social media presence. Soft skill topics of "planning and organizing" and "integrity and respect".

Distribution: Career Training. Prerequisite: ENGR195.

ENGR& 214 - Statics (5)

A fundamental course in the mechanics of rigid bodies in static equilibrium conditions. Solves practical engineering problems involving the loads carried by structural components using Static principles, vector notation and calculus for mathematical modeling. Teaches principles and their limitations within the context of Engineering applications and the engineering design process. Students must take MATH153 (as pre or corequisite), PHYS223 (as a pre or corequisite), or instructor permission.

Distribution: Career Training. Prerequisite: Physics& 221. Offered: Fall.

ENGR 296 - Work-based Learning Experience (1-13)

Students transitioning from an educational environment to the workplace need to make the connection between the knowledge and skills obtained throughout the program of study and how it applies to professional work in the field. This course provides students with an opportunity to align curriculum and instruction with tasks required in a given career field. The outcomes in this course can be achieved through one of the two methods below:

1) Sustained interactions with industry or community professionals in real workplace settings, to the extent practicable, or

2) Simulated environments at an educational institution.

Prerequisite: Instructor Permission. Crosslisted as: This course is equivalent to the Work-Based Learning Experience courses in Civil and Environmental, Electrical, and Mechanical Engineering Technology. Offered: Fall, Winter, Spring, Summer.

Outcomes
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.

ENGR& 221 - (5)

ETECH-Engineering Technology

ETECH 103 - AC Circuits (5)

This course provides students with knowledge of alternating current and voltage, capacitors. Capacitive circuits, inductors, inductive circuits, resonance, transformers and reactive circuits. The course provides relevance to circuits and applications and delivers the material via a systems approach combined with electronic theory. Complex arithmetic is not required for this course.

Distribution: Career Training. Offered: 1.

ETECH 105 - Digital Circuits (5)

This course provides students with knowledge and application of digital principles and circuits. The purpose of the course is to teach principles of digital electronics. The material covers a variety of topics including Boolean algebra, basic gates, logic circuits, flip-flops, registers, arithmetic circuits, counters, interfacing with analog devices, and computer memory. Complex arithmetic is not required for this course

Distribution: Career Training. Offered: 2.

ETECH 106 - Microcontrollers (5)

The course is an introduction to the fundamentals of microcontroller-based systems, including applications, architecture, number systems, and languages

Distribution: Career Training. Offered: 2.

ETRIC-Electrical Engineering Technology

ETRIC 120 - CAD Design Applications (5)

Students use Autodesk Revit Architectural Fundamentals to produce engineering drawings. Emphasis is placed on understanding the purpose of Building Information Models (BIM), creating levels, using 3D modeling with walls, curtains, windows, and doors. This course streamlines the design process through the use of a central 3D model, where changes made in one view update across all the views.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Winter, Summer.

Outcomes
Interact and explore introductory CAD methods; introduce beginning elementary drawing techniques.
Produce engineering drawings with different layers, colors and line types.
Create and develop architectural projects setting up levels, structural grids, and columns.
Develop two and three-dimensional drawings with the ability to modify and display different views.
Create construction documents and schedules with details, dimensions, and electrical components.

ETRIC 121 - Technical Communications with Lab (5)

A study of written and oral communication techniques to develop necessary skills to write and plan technical formatted documents. Students will learn skills to write resume and cover letters. This course emphasizes on the skills employees demand in today's workforce such as thinking, listening, composing, revising and editing. This course features an engaging learning style where student use real-world models and write-to-learn activities to expand oral presentations and research based projects.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Winter, Summer.

Outcomes
Create written documents using expressive and expository writing to convey personal observations and feelings.
Observe engineering activities, collect primary experimental data to produce successful reports.
Generate successful resumes, cover letters and other workplace reports.
Prepare and give special Power Point presentations to meet the needs of specific audiences.
Plan draft and revise written engineering documents or reports to increase workplace productivity.

ETRIC 128 - Electrical Math (5)

This course focuses on electronic formulas and solutions. Resistance of wires, types, and sizes are applied to voltage drop calculations, transformers, and meter movements. The course focuses on both DC and AC theories including the atom structure, energy sources, Ohm's Law, Kirchhoff's laws, network theorems, magnetism, electromagnetism, alternating voltage and current, and reactivate components. Laboratory application assignments will be completed using simulations.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Summer.

Outcomes
Solve electrical engineering equations and formulas, including systems of equations.
Compute volume and areas of regular and irregular geometric shapes.
Evaluate, graph, and find the domain and range of algebraic and trigonometric functions.
Solve electrical problems using power, current, and impedance triangles applying Pythagoreans Theorem.
Given a complex electrical engineering formula, solve for the unknown.

ETRIC 147 - Code Applications (5)

A comprehensive overview of the latest National Electrical Codes recognized by the industry. The primary function of the purpose of the NEC codes to safeguard people and property against electrical hazards. This course covers branch circuits and feeders, load calculations, electrical services, conductors, overcurrent protection, grounding, wiring methods, wiring materials, raceways, boxes, motors, generators, and transformers.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Winter, Summer.

ETRIC 148 - Electrical Systems with Simulation (5)

Commercial project development, design team concepts are emphasized. Basic power devices, circuiting layout, overcurrent devices, raceways, and luminaries are covered. Transmission lines, distribution voltage systems, load characteristics, short-circuit calculations, and load demands are discussed.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Winter, Summer.

Outcomes
Understand the National Electrical Code requirements in electrical designs.
Ensure proper installation of motors and other devices used in electrical systems.
Display knowledge of electrical systems lighting requirements.
Understand the importance of Ground-Fault Circuit Interrupter (GFCI) and ARc-Flash Circuit Interrupters (AFCI) requirements in electrical systems.
Ensure that the National Electrical Code (NEC) grounding requirements are met in all installations.

ETRIC 249 - Project Management (5)

This course covers elements of management as related to electrical engineering projects, responsibilities of project managers, on-site representatives, engineers and inspectors; the concepts of developing the project team approach. Students should be able to perform planning and scheduling tasks related to construction contracts, and the various functions of the project process.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Spring.

ETRIC 250 - Senior Project (5)

Electrical engineering system planning, analysis and creative design, problems formulation, recognition of a design change, design constraints and requirements , feasibility assessment, and design of electrical engineering systems. Oral presentations and written report are required. Project I and II aim to broaden student's concepts of engineering planning, analysis design with emphasis on the design process. The objective of this course is to formulate analyze and solve electrical engineering problems through creative thinking, engineering education and using the principles of technical and professional practices. Students will apply the foundational knowledge and skills from the science and engineering principles.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Spring.

Outcomes
Develop the project planning, project breakdown, and activity relationship.
Construct a project network model, network diagrams, program evaluation and review techniques. (PERT)
Perform critical path analysis for project scheduling using special software.
Understand the planning, scheduling and construction phase of electrical engineering projects.
Understand the project delivery system, responsibility, and authority of projects.

ETRIC 260 - Advanced CAD Operations (5)

CAD systems, including 3D concepts, are used to produce engineering drawings using layers, masks, and groups. Symbols and x-references are applied.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Fall, Spring.

ETRIC 291 - Practical Applications (13)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Fall, Winter, Spring, Summer.

Outcomes
This course offers students an opportunity to work a lab-based project instead of a work based learning component. The project should be based on prior course work and should result in the achievement of advance learning on the subject chosen.

ETRIC 292 - Independent Projects (1 to 13)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: None.

Outcomes
This course offers students an opportunity to work a lab-based project instead of a work based learning component. The project should be based on prior course work and should result in the achievement of advance learning on the subject chosen.

ETRIC 293 - Independent Projects (1 to 5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: None.

Outcomes
This course offers students an opportunity to work a lab-based project instead of a work based learning component. The project should be based on prior course work and should result in the achievement of advance learning on the subject chosen.

ETRIC 294 - Independent Projects (1 to 5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: None.

Outcomes
This course offers students an opportunity to work a lab-based project instead of a work based learning component. The project should be based on prior course work and should result in the achievement of advance learning on the subject chosen.

ETRIC 296 - Work-Based Learning Experience (1 to 13)

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries area. The learning activity is based on a written agreement with the participating training provider.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Fall/Spring.

Outcomes
This course is provided for students to meet theory requirement of instruction via canvas or other learning management system (LMS). This course requires that students must interact with faculty via LMS for a minimum of 10 hours.

ETRIC 297 - Work-Based Learning Seminar (2)

Students enroll in a work-based learning seminar min order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Winter, Summer, Spring.

Outcomes
Students enroll in a work-based learning seminar min order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

FACM-Facilities Maintenance Engineer

FACM 101 - Safety Principles (2)

This course is an introduction to the safety practices and procedures as required by state and federal standards for building maintenance

Distribution: Career Training. Offered: Fall.

Outcomes
Apply OSHA and WISHA safety standards
Follow and maintain MSDS procedures and guidelines
Follow hand and power tool safety guidelines
Follow shop safety procedures
Identify and follow lock-out / tag-out procedures
Maintain and handle hazardous materials as needed
Obtain First Aid / CPR certification

FACM 102 - Fundamentals of Electricity (3)

This course is an introduction to the fundamentals of electricity and their application to the building maintenance industry: Ohm's law, basic circuitry fundamentals, electrical troubleshooting and the National Electrical Codes are studied

Distribution: Career Training. Offered: Fall.

Outcomes
Apply Ohms law to basic circuitry
Apply proper electrical safety standards
Identify and follow electrical lock-out/ tag-out procedures
Identify fundamentals of basic circuitry
Install basic electrical circuitry
Read and interpret national electrical codes
Troubleshoot and repair basic electrical circuitry

FACM 103 - Electrical Service (4)

Students troubleshoot, test, maintain, and repair electrical services within a building. Electric motors, controls, PLCs, and test equipment are studied

Distribution: Career Training. Offered: Fall.

Outcomes
Identify and service a wide range of circuitry
Identify and use electrical service hand and power tools
Identify, test and close out electrical circuits
Install complete basic electrical system
Perform basic electrical service and maintenance or repair
Understand basic electric motor operation
Understand program PLC devices

FACM 104 - Introduction to Blueprint Reading (5)

Students read, interpret, and create graphic drawings including building and machine blueprints, technical sketching, and working drawings. Trade math is also studied

Distribution: Career Training. Offered: Fall.

Outcomes
Draw basic structures to scale with detail
Identify and read basic blueprints
Identify basic blueprint symbols and abbreviations
Identify basic technical drawing and sketching tools
Perform basic dimensioning procedures
Perform basic trade math functions
Understand and perform decimal/fractional and metric conversions

FACM 105 - Engineering Drawings (4)

A continuation of the concepts introduced in FACM 104, students creates commercial plans: plot, floor, elevation, sections, and plan details

Distribution: Career Training. Offered: Fall.

Outcomes
Perform basic Blueprint to construction applications
Read and understand basic electrical and mechanical blueprints
Read and understand basic elevations
Read and understand basic floor plans
Read basic foundation, framing and finishing blueprints
Read basic survey plats and plot plans

FACM 106 - Introduction to Hydraulics/Pneumatics (5)

This course is an introduction to basic fluid power, and the application of hydraulic principles to the building maintenance field. Hydraulic systems, circuits, and efficiency are studied

Distribution: Career Training. Offered: Winter.

Outcomes
Perform basic hydraulic/pneumatic system maintenance
Read and understand basic fluid power systems
Read and understand basic pneumatic systems
Read and understand preventive maintenance schedules
Understand and apply basic fluid power/pneumatic safety procedures
Understand basic troubleshooting applications

FACM 107 - Machine Components (5)

This course is an introduction to industrial maintenance of machine components including predictive and preventive

maintenance, lubrication requirements, vibration analysis, and close tolerance dimensioning

Distribution: Career Training. Offered: Winter.

Outcomes
Follow basic troubleshooting procedures on mechanical systems
Perform basic shaft alignment and vibration analysis procedures
Select and use basic mechanical maintenance hand and power tools
Understand and apply pulley and gear ratios
Understand the basic application of lubricants, oils, seals and bearings
Understand, clean and lubricate basic mechanical systems

FACM 108 - Mechanical and Machine Maintenance (5)

Students follow processes used to maintain centrifugal, rotary, and reciprocating pumps, gears, and compressors, and other mechanical devices. Maintenance scheduling, computerized maintenance management systems and computer- generated repair strategies are studied

Distribution: Career Training. Offered: Winter.

Outcomes
Follow basic troubleshooting procedures on mechanical systems
Identify mechanical system components and fundamentals
Produce computer generated maintenance schedules
Select and use basic research skills for cost analysis comparison
Understand and apply cost analysis procedures to maintenance scheduling
Understand and promote professional maintenance department skills and training
Understand repair procedures and reporting

FACM 109 - Tools and Equipment (3)

This course is an introduction to the tools and equipment used in the building maintenance occupation. The safe use, maintenance, and storage of a variety of tools and equipment are emphasized. Stationary, hand, and power tools are used

Distribution: Career Training. Offered: Winter.

Outcomes
Follow basic safety procedures in the operation and use of tools
Identify proper equipment use and application in the maintenance field
Identify, select and use basic maintenance hand tools
Identify, select and use basic maintenance power tools
Perform research and cost comparison for tool replacement/upgrade
Perform the safe operation of stationary equipment in the maintenance field

FACM 111 - Building Maintenance and Repair Methods (5)

The maintenance, repair, and minor remodeling techniques for structures and the non-mechanical elements of a building complex are emphasized. Doors, windows, stairs, walls, siding, roofing and all other aspects of building maintenance are discussed

Distribution: Career Training. Offered: Spring.

Outcomes
Follow basic safety procedures in the selection and use of tools
Identify interior/exterior materials and supplies for building repair
Perform advanced mathematical calculations for building repair or additions
Perform basic carpentry for building maintenance and repair
Perform basic drywall and wall component installation and repair
Perform basic plumbing system maintenance and repair
Perform research and cost analysis for interior/exterior repair or additions

FACM 112 - Basic Refrigeration (4)

This course is an introduction to basic refrigeration cycles and components. Mechanical compression systems, absorption systems and troubleshooting techniques are discussed

Distribution: Career Training. Offered: Summer.

Outcomes
Identify basic maintenance procedures for refrigeration systems
Read and understand refrigeration rules and regulations
Read basic refrigeration troubleshooting procedures
Understand absorption refrigeration systems
Understand and follow safe refrigerant handling procedures
Understand basic mechanical refrigeration compression systems
Understand the basic refrigeration system

FACM 113 - Introduction to Building Maintenance (3)

Students are introduced to the basic maintenance and repair methods used in the building maintenance profession

Distribution: Career Training. Offered: Spring.

Outcomes
Follow basic safety procedures in the selection and use of tools
Identify basic carpentry framework maintenance and repair
Identify basic drywall installation and repair
Identify proper equipment use and application for building repair
Identify structural building components and required repairs
Perform basic mathematical calculations for structural repairs and additions
Perform research and cost analysis for structural repair or additions

FACM 121 - Grounds Keeping (5)

Students select and use proper equipment for maintaining turf, shrubs, and plants. Irrigation system design, installation and repair, basic asphalt and concrete maintenance are studied

Distribution: Career Training. Offered: Spring.

Outcomes
Follow basic safety, PPE procedures in the selection and use of supplies
Identify and meet building occupant needs
Identify and practice environmentally responsible grounds maintenance
Identify and select grounds maintenance tools and equipment
Perform basic grounds keeping functions
Troubleshoot and repair grounds maintenance equipment
Understand basic irrigation design and installation procedures

FACM 122 - HVAC Systems (4)

This course is an introduction to the fundamentals of heating and air conditioning systems with emphasis on the adjustment of air flow, indoor air quality, troubleshooting of minor problems, and preventive maintenance methods are studied

Distribution: Career Training. Offered: Summer.

Outcomes
Follow safe and efficient HVAC maintenance procedures
Identify and select basic HVAC maintenance / repair materials
Identify and understand the basic HVAC system
Perform basic HVAC system troubleshooting, maintenance and repair
Read and interpret basic circulation balancing procedures
Research, read and understand basic indoor air quality information
Understand basic maintenance procedures for HVAC systems

FACM 140 - Boiler Operations and Certifications (12)

This course is an introduction to the basic principles of low and high-pressure steam boiler systems with emphasis on routine operation, maintenance, and emergency procedures. Upon successful completion of the coursework, students may test for certification as a Class V Boiler Operator/Fireman

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Identify and select basic water treatment chemicals
Understand basic operational procedures for boiler/fireman
Identify and select boiler service/maintenance hand and power tools
Identify and understand the basic boiler systems
Perform basic boiler system maintenance and repair as allowed
Read and understand basic steam principles for boiler operation
Research and understand city of Tacoma ordinance requirements
Research, read and understand basic ASME code and safety regulations
Understand and follow safe and efficient boiler operation procedures
Understand basic combustion controls and instruments

FACM 143 - Advanced Projects (10)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student to be viable and industry related. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Clearly define and explain research / development methods for the project
Clearly define and explain the project in a public environment
Complete an assigned project with professionalism while meeting the time, material, and budget requirements set out in project planning
Present assigned project for assessment and grading
Regularly report project progress with clarity and professionalism
Take an assigned project from the idea stage through design, costing, approval, development and completion stages in the time frame allowed

FACM 144 - Advanced Boiler Operations (5)

Students follow advanced boiler methods of low and high-pressure steam boiler systems with emphasis on routine operation, maintenance, and emergency procedures. Upon successful completion of the coursework, students may test for certification as a Class IV Boiler Operator/Fireman

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Clearly define and explain Tacoma boiler certification requirements
Understand basic operational procedures for boiler/fireman
Define and draw basic combustion systems
Define and draw basic steam and water boiler systems
Define boiler testing's requirements
Identify and understand and draw the basic boiler safety systems
Read, understand and explain basic Steam tables
Research and explain applicable city of Tacoma ordinance
Research basic ASME code and safety regulations
Understand and explain safe and efficient boiler operation procedures

FACM 221 - Small Business Planning (3)

Students review light residential and commercial design and remodeling methods including the bidding process. Energy auditing, building code requirements, deconstruction, sustainable retrofit and updates to the building environment are researched

Distribution: Career Training. Offered: Summer.

Outcomes
Create a small business plan
Define, draw and explain basic building change or repair projects
Professionally present personal attributes through a variety of media
Research and then present equipment lifecycle costs
Research, understand and explain small business related data
Use industry terminology to present maintenance related data
Write and then present a cost analysis of a maintenance project

FACM 222 - Introduction to Remodeling (4)

Students review light residential and commercial design and remodeling methods including the bidding process. Energy auditing, building code requirements, retrofit, and updating the built environment are researched

Distribution: Career Training. Offered: Spring.

Outcomes
Clearly define cost analysis for building remodel or repair
Define and draw basic remodel or existing building change projects
Professionally install or repair a variety of building accessories
Read and understand building structural requirements for building change
Research understand and explain applicable city of Tacoma permit process
Research, read, and understand basic code requirements
Understand and explain safe and efficient remodeling practices
Understand basic building remodeling procedures and requirements

FACM 230 - Computers in Industry (2)

Students are introduced to the use of computers in maintenance management with the use of basic computer programs

Distribution: Career Training. Offered: Summer.

Outcomes
Develop maintenance schedules, reports and records
Develop spreadsheets of connected data for a maintenance project
Project management
Research and present basic technical data through electronic media
Successfully communicate through electronic media
Use a variety of electronic programs for data manipulation
Use electronic methods to research maintenance data

FACM 231 - Computer Applications (4)

Students create preventive maintenance schedules using a spreadsheet application with mainstream applications utilized by maintenance technicians. Students use common programs for research, cost analysis, scheduling, tracking and reporting. They also use common computer applications to communicate, build, and share maintenance-related coursework

Distribution: Career Training. Offered: Summer.

Outcomes
Comfortably use a variety of software programs and formulas
Develop an in-depth spreadsheet of data for a maintenance project
Present a variety of technical data in spreadsheet format
Successfully pass information through electronic media
Use advanced electronic media commands
Use electronic media for project / information presentation
Use electronic media to research and compile maintenance related data
Use electronic presentation methods

FACM 291 - Practical Applications (1 to 13)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Apply practical theory and technical skills learned through classroom training to analyze and resolve problems within practical applications.
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

FACM 292 - Independent Project I (5)

The independent project I course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ. Offered: Summer.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project I
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

FACM 293 - Independent Project II (5)

The independent project II course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project II

FACM 294 - Independent Project III (5)

The independent project III course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Prerequisite: INSTR PERM REQ.

Outcomes
Apply effective oral, written, and analytical communication appropriate to role and lab/classroom environment.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within independent project III
Demonstrate ethically and in a culturally relevant manner as a professional in the lab/classroom environment.

FACM 296 - Work-Based Learning Experience I (1 to 13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR PERM REQ. Offered: Fall, Spring.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

FACM 297 - Work-Based Learning Experience II (1 to 13)

This course provides a work-based learning experience with an instructor-approved employer in student's program of study. Emphasis is placed on integration of classroom learning with related work experience. Specific learning outcomes need to be agreed upon in a written agreement between student, instructor, and participating employer. Upon completion, students should be able to evaluate their career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

Distribution: Career Training. Prerequisite: INSTR PERM REQ. Offered: Fall, Spring.

Outcomes
Analyze and resolve problems that arise in completing assigned tasks.
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.

FIRES-Fire Service

FIRES 101 - Orientation to Fire Service (2)

This course is an introduction to the history, evolution, organization, and traditions of the fire service

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe the organization of fire departments
Explain the organizational characteristics, cultural challenges, and cultural strengths that influence the fire service.
Summarize the history of the fire service.

FIRES 102 - Firefighter Safety (4)

This course provides a foundation of knowledge regarding the significant risks associated with the fire service and a look at the common causes of injuries and death faced by todays firefighter. This course also provide students information on the various personal protective equipment available to firefighters, and principles of Critical Incident Stress Management

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe safety equipment and clothing used by fire department emergency workers to safely work at emergency scenes.
Identify signs and symptoms of critical incident stressors
List the main types of job-related firefighter fatalities, injuries, and illnesses.

FIRES 103 - Fire Service Applications I (5)

In this course students apply the theory presented in lecture/lab and demonstrates performance standards

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstration of proficient techniques as outlined in the students task sheets at 100 %.

FIRES 104 - Physical Fitness I (1)

Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Perform the quarterly physical fitness test and score 80% or better

FIRES 105 - Introduction to Fire Science (3)

This course introduces students to the science of fire: the exothermic oxidation of a combustible substance, fire behavior and suppression methods and how ventilation affects the growth of fire

Distribution: Career Training. Prerequisite: FIRES101, FIRES102, FIRES103, FIRES104, FIRES106. Offered: Winter, Summer.

Outcomes
Define horizontal and vertical ventilation.
Describe direct attack, indirect attack, combination attack, and gas cooling techniques.
Explain the science of fire as it relates to energy, forms of ignition, and modes of combustion.

FIRES 106 - Fire Hose and Appliances (3)

This course introduces students to the care, maintenance, and use of fire hose, hose tools, and associated appliances. Students also identify the key components of municipal and rural water supply systems

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe the factors in operating and maintaining handling nozzles.
Explain the ways water supply system components are used by firefighters.
Identify basic inspection, care, and maintenance methods for fire hose.

FIRES 107 - Fire Service Applications II (5)

Students apply the theory presented in lecture/lab and demonstrate performance standards

Distribution: Career Training. Prerequisite: FIRES101, FIRES102, FIRES103, FIRES104, FIRES106. Offered: Winter, Summer.

Outcomes
Demonstration of proficient techniques as outlined in the students task sheets at 100 %.

FIRES 108 - Physical Fitness II (1)

Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student

Distribution: Career Training. Prerequisite: FIRES101, FIRES102, FIRES103, FIRES104, FIRES106. Offered: Winter, Summer.

Outcomes
Perform the quarterly physical fitness test and score 80% or better.

FIRES 109 - Ladders (5)

This course covers the various types of portable and mounted ladders used in the fire service. Students' identify the uses of ladders on the fire scene, various methods for placement, and maintenance of ladders while suppression operations are in progress

Distribution: Career Training. Prerequisite: FIRES101, FIRES102, FIRES103, FIRES104, FIRES106. Offered: Winter, Summer.

Outcomes
Explain the considerations addressed by ladder inspection, cleaning, and maintenance.
Identify the parts of a ladder including markings and labels.
Recognize the types of ladders used in the fire service.

FIRES 110 - Intermediate Fire Service (2)

During this lesson, students identify how common building materials and construction methods are impacted by fire, how to force entry into a structure or structural components, how to apply loss control knowledge and practices, and how to properly select, use, and correctly maintain portable fire extinguishers

Distribution: Career Training. Prerequisite: FIRES105, FIRES107, FIRES108, FIRES109. Offered: Fall, Spring.

Outcomes
Describe the impact of fire on common building materials.
Explain the basic principles of forcible entry.
Explain the considerations taken when selecting and using portable fire extinguishers.
Explain the philosophy of loss control and salvage procedures.

FIRES 111 - Fires Service Applications III (4)

Students apply the theory presented in lecture/lab and demonstrate performance standards

Distribution: Career Training. Prerequisite: FIRES105, FIRES107, FIRES108, FIRES109. Offered: Fall, Spring.

Outcomes
Demonstration of proficient techniques as outlined in the students task sheets at 100 %.

FIRES 112 - Physical Fitness III (1)

Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student.

Distribution: Career Training. Prerequisite: FIRES105, FIRES107, FIRES108, FIRES109. Offered: Fall, Spring.

Outcomes
Perform the quarterly physical fitness test and score 80% or better.

FIRES 121 - Wildland Firefighter (2)

This course introduces students to wild land fire behavior, tactics, the 10 standard fire-fighting orders, and the 18 "watch out" situations found in wild-land situations. The course includes elements of S-130 and S-190, and includes an arduous Pack Test and fire shelter deployment which leads to wild-land Red-Card certification

Distribution: Career Training. Prerequisite: FIRES105, FIRES107, FIRES108, FIRES109. Offered: Fall, Spring.

Outcomes
Identify the 18 watch out situations.
Restate the 10 standard firefighting orders.

FIRES 123 - Fire Service Applications IV (5)

In this course students apply the theory presented in lecture/lab and demonstrates performance standards

Distribution: Career Training. Prerequisite: FIRES110. FIRES111, FIRES112, FIRES121, FIRES125. Offered: Winter, Summer.

Outcomes
Demonstration of proficient techniques as outlined in the students task sheets

FIRES 124 - Physical Fitness IV (1)

Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student

Distribution: Career Training. Prerequisite: FIRES110. FIRES111, FIRES112, FIRES121, FIRES125. Offered: Winter, Summer.

Outcomes
Perform the quarterly physical fitness test and score 80% or better.

FIRES 125 - Fire Vehicle Operations (3)

This course provides the Knowledge required for the safe operation and maintenance of emergency vehicles. The proper operation of fire pumps, the roles and responsibilities of the driver/operator, and the theory and principles behind water flow and calculations are included

Distribution: Career Training. Prerequisite: FIRES105, FIRES107, FIRES108, FIRES109. Offered: Fall, Spring.

Outcomes
Demonstrate the steps necessary for making a fire pump operational.
Identify and explain the Legal Aspects of Emergency Vehicle Operations.
Identify hydraulic theory and principles.

FIRES 201 - Rescuer Procedures (3)

Students identify the techniques used to rescue civilians and fire service personnel in various rescue situations, Thermal imaging principles, and the use and care of ropes and webbing

Distribution: Career Training. Prerequisite: FIRES110. FIRES111, FIRES112, FIRES121, FIRES125. Offered: Winter, Summer.

Outcomes
Describe characteristics of knots commonly used in the fire service.
Describe, as well as perform, search and victim removal methods to use during structural search and rescue.
Identify thermal imaging principles

FIRES 202 - Advanced Fire Service (3)

This course describes the role of a Firefighter I in the

development and implementation of fire and life safety programs, external and internal communications, and the investigative process of a fire's cause and origin

Distribution: Career Training. Prerequisite: FIRES110. FIRES111, FIRES112, FIRES121, FIRES125. Offered: Winter, Summer.

Outcomes
Describe the relationship between fire cause classifications and cause determination.
Explain the procedures for receiving emergency and nonemergency external communications.
Explain the steps taken during fire and life safety program development.

FIRES 203 - Fire Service Applications V (5)

Students apply the theory presented in lecture/lab and demonstrates performance standards

Distribution: Career Training. Prerequisite: FIRES123, FIRES124, FIRES201, FIRES202, FIRES215. Offered: Fall, Spring.

Outcomes
Demonstration of proficient techniques as outlined in the students task sheets

FIRES 204 - Physical Fitness V (1)

Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student

Distribution: Career Training. Prerequisite: FIRES123, FIRES124, FIRES201, FIRES202, FIRES215. Offered: Fall, Spring.

Outcomes
Perform the quarterly physical fitness test and score 80% or better.

FIRES 206 - Employment Preparation (2)

Students are introduced to emergency service professionals' career ladder structures. They also apply a variety of job search skills necessary to gain employment in the fire service

Distribution: Career Training. Prerequisite: FIRES123, FIRES124, FIRES201, FIRES202, FIRES215. Offered: Fall, Spring.

Outcomes
Complete a job application
Demonstrate board interview techniques
Identify job search strategies

FIRES 207 - Strategy, Tactics, and Incident Management (2)

Students are introduced to the National Fire Protection Association Incident Management System at the intermediate level (NIMS). Fire Ground Tactics and Strategies are also included

Distribution: Career Training. Prerequisite: FIRES123, FIRES124, FIRES201, FIRES202, FIRES215. Offered: Fall, Spring.

Outcomes
Establish and work within various Incident management systems
Identify principles of fire ground strategy & tactics
Identify various Incident Management systems

FIRES 208 - Fires Service Applications VI (4)

Students apply the theory presented in lecture/lab and demonstrate performance standards

Distribution: Career Training. Prerequisite: FIRES123, FIRES124, FIRES201, FIRES202, FIRES215. Offered: Fall, Spring.

Outcomes
Demonstration of proficient techniques as outlined in the students task sheets at 100 %.

FIRES 209 - Basic Life Support (1)

The course is designed to provide a wide variety of healthcare professionals the ability to recognize several life-threatening emergencies, provide CPR, use an AED, and relieve choking in a safe, timely, and effective manner. The course is intended for certified or noncertified, licensed or non-licensed healthcare professionals

Distribution: Career Training. Prerequisite: FIRES203, FIRES204, FIRES206, FIRES207, FIRES208, FIRES216.

Offered: Winter, Summer.

Outcomes
Describe and practice the principles of infection control and standard precautions for all patients.
Explain the basic components of an emergency medical system.
Perform an initial assessment on all patients, obtain vital signs, and conduct a focused history and physical exam for signs of illness and/or injury.

FIRES 212 - Advanced Firefighter (4)

Students are introduced to the minimum requirements established by the National Fire Protection Association for Firefighter II certification. Topics to be presented include IMS, foam ops, and auto extrication

Distribution: Career Training. Prerequisite: FIRES203, FIRES204, FIRES206, FIRES207, FIRES208, FIRES216.

Outcomes
Describe the role of the firefighter in Incident Command systems.
Explain the principles of foam and foam making for fire suppression
Describe the safe operation of vehicle extrication, tools and equipment.

FIRES 213 - Physical Fitness VI (1)

Throughout their training, students acquire the physical strength and stamina required of the profession. Each physical fitness course builds upon the levels previously achieved by the student

Distribution: Career Training. Prerequisite: FIRES203, FIRES204, FIRES206, FIRES207, FIRES208, FIRES216.

Outcomes
Perform the quarterly physical fitness test and score 80% or better.

FIRES 215 - Hazardous Materials I (1)

This course emphasizes the knowledge required to identify NFPA 472 Awareness Level standards for the first responders to hazardous materials incidents. Students define how to use the Emergency Response Guidebook for responders to hazardous materials incidents

Distribution: Career Training. Prerequisite: FIRES110. FIRES111, FIRES112, FIRES121, FIRES125. Offered: Winter, Summer.

Outcomes
Summarize first responder roles at Haz Mat/WMD incidents.
Explain how the Emergency Response Guidebook (ERG) is used at Haz Mat/WMD incidents.

FIRES 216 - Hazardous Materials II (2)

This course emphasizes the knowledge required to identify NFPA 472 Operations Level standards for the first responders to hazardous materials incidents. Students set up decontamination procedures for responders to hazardous materials incidents

Distribution: Career Training. Prerequisite: FIRES123, FIRES124, FIRES201, FIRES202, FIRES215. Offered: Fall, Spring.

Outcomes
Explain proper procedures for PPE inspection, storage, testing, and maintenance.
Describe the considerations and limitations of emergency and technical decontamination.
Explain the strategic goal of spill control and confinement.

FIRES 220 - Fire Service Applications VII (4)

Students apply the theory presented in lecture/lab and demonstrates performance standard

Distribution: Career Training. Prerequisite: FIRES203, FIRES204, FIRES206, FIRES207, FIRES208, FIRES216.

Outcomes
Demonstration of proficient techniques as outlined in the students task sheets at 100 %.

FIRES 222 - Advanced Pump Operations (4)

The student studies the proper operation of fire pumps, the theory, and principles behind water flow and calculations that are applied on the fire ground. Also taught are drafting and fire pump testing as well as foam operations. Completion of Fire Vehicle Operations and Advanced Pump Operations qualify the student to attain IFSAC certification for Driver Operator Pumper

Distribution: Career Training. Prerequisite: FIRES203, FIRES204, FIRES206, FIRES207, FIRES208, FIRES216.

Outcomes
Describe the operational theory of pumps used in the Fire Service.
Operate a Fire Department pumper from a static water source and demonstrate fire pump testing.
Assemble a hose foam line and produce finished foam stream.

FIRES 225 - Emergency Medical Technician (EMT) (14)

This course prepares students to meet the requirements for employment as an EMT-B. It adheres to the U.S. Department of Transportation Guidelines and the Washington State Department of Social and Health Services standards

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Define the EMT-Basic's scope of practice, and legal and ethical issues.
Perform Patient assessment.
Analyze emergency medical situations and provide appropriate treatment.

FIRES 230 - Fire Protection Strategies and Tactics (5)

This course examines strategies decision and tactical operations guiding students through the process of problem identification and solution response.

Distribution: career training.

Outcomes
Discuss strategy, tactics, and tasks found in the classical decision making process
Identify and discuss the 13 points of size up
Discuss the modes of fire attack
Develop an Incident Action Plan

FIRES 231 - Fire Protection Systems (5)

This course familiarizes fire service and other interested personnel with the types, arrangements, and operating principles of systems to address fire detection and alarm systems, smoke management systems, water supply, fire pumps, automatic sprinkler systems, standpipe and hose systems, special extinguishing systems, and portable fire extinguishers.

Distribution: Career Training.

FIRES 232 - Fire Protection Hydraulics (5)

This course provides basic foundational topics in fire department hydraulics, explaining how and why water is discharged from nozzles at the correct pressures to effectively fight fires

Distribution: Career Training.

Outcomes
Identify hydraulic theory and principles
Apply the application of mathematics and physics to the movement of water in fire suppression activities
Comprehend the design principles of fire service pumping apparatus
Demonstrate, through problem solving, a thorough understanding of the principles of forces that affect water at rest and in motion

FIRES 233 - Building Construction (5)

This course emphasizes the impact that and understanding of the principles of building construction has on firefighting strategy.

Distribution: Career Training.

Outcomes
Describe the impact of fire on common building materials
Explain the impact of fire on construction classifications
List the main types of occupancy classification
Explain the hazards related to building construction
Recognize the factors that influence structural collapse

FIRES 234 - Codes and Inspections (5)

This course educates students about the principles and techniques of fire prevention and life-style inspection and code compliance.

Distribution: Career Training.

Outcomes
Explain the code enforcement system and the fire inspector's role in that system
Describe the codes and standards development and adoption processes
Describe the difference between prescriptive and performance based codes
Recognize ethical practices for code enforcement officer
Explain the application and interrelation of codes, standards, recommended practices and guides
Describe the differences in how codes apply to new and existing structures

FIRES 240 - Fire Instructor (3)

Students are introduced to the National Fire Protection Association Standard #1041 "Professional Qualifications for Fire Service Instructors" at the Instructor I level

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Summarize professional responsibilities of the fire and emergency services instructor.
Describe the different learning domains and learning styles.
Discuss the classroom and training ground environments.

FIRES 241 - Fire Safety Officer (2)

Students are introduced to health and safety issues of the Fire Service. Included are risk management; workplace safety; and health, wellness, and safety program

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Explain organizational risk management.
Identify basic workplace safety policies and procedures
Identify elements of a health, wellness, and safety program.

FIRES 242 - Fire Officer I (5)

Students are introduced to the National Fire Protection Association standard 1021 Standard for Fire Officer Professional Qualifications, for Fire Officer I. Organizational Structure, Leadership and Supervision is also included

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Describe the basic principles of an organizational structure
Explain the principles of leadership as applied to a company officer.
Describe roles of supervision in the responsibilities of a company officer.

FIRES 243 - Fire Officer II (5)

Students are introduced to the National Fire Protection Association standard 1021 Standard for Fire Officer Professional Qualifications, for Fire Officer II. Human Resources Management, Fire Origin and Cause Determination is also included

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Explain the role of professional development in fire and emergency service organizations
Describe processes of determining a fire's area of origin
Explain elements of fire cause determination

HIST - History

HIST 101 - A History of Science and Technology (5)

This course will trace the history of scientific and technological advancements in the western world. Students will be made aware of the evolution in science from a philosophical and historical perspective. Part of the course will focus on the contributions that significant philosophers, scientists and institutions made to knowledge-making. At the same time, emphasis will also be directed toward the contributions of common, everyday artisans and craftsmen to "discovering", creating and recording scientific and technical knowledge.

Distribution: Gen-Ed. Prerequisite: Placement or ENGL091.

HIST& 146 - United States History I (5)

This course surveys several prominent political, social, cultural, and economic events in North America, from Pre-Contact Native America through the Post-American Revolution era. Prominent topics include Contact, European conquest and settlement, colonial life, slavery, the American Revolution, the U.S. Constitution, and Post-Revolution growing pains of the new nation. Students will participate in daily online discussions and write a series of brief essays. Textbook: *The American Yawp,* available

online free, online.

Prerequisite: ENGL& 101, minimum 2.0 grade or better. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer (Dean's discretion).

Outcomes
Explain general themes of the history of North America before the 19th century.
Explain and compare their knowledge of North American society's varied cultures and worldviews before the 19th century.
Analyze and explain the social, cultural, economic, and political factors that shaped Native American and non-Native American societies in North America before the 19th century.
Analyze the major theoretical issues in North American history before the 19th century.
Evaluate, synthesize, and present information from primary and secondary historical sources consistent with standards in the field of history.

HIST& 147 - United States History II (5)

This course surveys various prominent political, social, cultural, and economic events in the United States during the 19th century. Prominent themes include American industrialization, westward expansion, slavery, the American Civil War, Reconstruction, the Jim Crow South, immigration, the Gilded Age, and U.S. involvement in foreign affairs. Students will participate in daily online discussions and write a series of brief essays. Textbook: *The American Yawp*, available free, online.

CIP: 54.0102

Prerequisite: HIST& 146 and ENGL& 101 , minimum 2.0 grade or better. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer (at Dean's discretion).

Outcomes
Explain general themes of the history of the United States in the 19th century.
Compare and contrast various cultures and worldviews in American society throughout the 19th century.
Analyze the social, cultural, economic, and political factors that contributed to shaping the United States in the 19th century.
Analyze major theoretical issues in the United States during the 19th century.
Evaluate, synthesize, and present 19th-century North American information from primary and secondary sources consistent with field of history standards.

HIST& 148 - United States History III (5)

This course investigates prominent political, social, cultural, scientific, and economic events in the 20th and 21st centuries. Prominent themes include the rise of American science and technology, the World Wars and the Cold War, Civil Rights and White pushback, the Great Depression and the rise and the eventual demise of social welfare programs, the women’s movement, America’s involvement in the Middle East, and American foreign policy. Students will participate in daily online discussions and write a series of brief essays. Textbook: *The American Yawp*, available free, online.

CIP: 54.0102

Prerequisite: HIST& 147 and ENGL& 101 , minimum 2.0 grade or better. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer, (Dean's discretion).

Outcomes
Explore concepts, theories, and methods used within the social sciences to understand human behavior/events.
Represent a point of view that is different from one's own.
Apply concepts and tools from the social sciences to explain or analyze a social phenomenon, process, event, conflict, or issue.
Demonstrate knowledge of the general history of the United States in the 20th century.
Analyze the construction and continued transformation of American culture and national identity in the 20th century.
Evaluate and synthesize credible and verifiable information from historical sources in a manner consistent with the standards in the field of history.

HREL - Human Relations

HREL 111 - Interviewing and Career Success (5)

This course is an introduction to employment and life skills that encourage self-awareness, self-confidence, and self-discipline that are necessary for college and self-promotion success. Topics include: self-motivation, personal learning styles, self-management, emotional intelligence, study skills, cover letter and resume writing, and interviewing. Students exercise learned skills by journaling, participating in classroom discussions, creating cover letters and resumes, and participating in mock interviews and other work-related situational role plays.

Distribution: Gen-Ed. Prerequisite: Placement or ENGL090.

HUM-HumanitiesSocial SciencesOther

HUM& 101 - Introduction to Humanities (5)

An introduction to the humanities through a review of some of the major developments in human culture around the globe. Taking the culture of Original Peoples of the West Coast as our point of departure, students will analyze how societies express their ideas through a number of aspects, which may include art, literature, music, architecture, mythology, cinema, and philosophy, identity patterns between such cultureal expressions and consider some of the underlying assumptions about the way societies are formed and run, and whose stories are given voices and how. Arranged thematically rather than chronologically, the course will focus on developing the conceptual tools to understand cultural phenomena critically.

Distribution: Gen-Ed.

Outcomes
Students will demonstrate via class discussions, writing assignments, and a hands-on project how the arts, philosophy, and literature reflect and shape humanity and the values of culture.
After viewing videos and reading materials, students will analyze in written responses the patterns found in artistic and philosophical works from representative periods and movements, and will create an artistic artifact of their own incorporating these patterns and commonalities.
Through quiz responses to videos and other materials as well as written responses, students will recognize and gain an understanding of cultural diversity as reflected in languages, the arts, or philosophy.
Students will demonstrate through written response and select response answers that they understand the vocabulary needed to critically evaluate artistic and philosophical works and their contribution to the human experience and to identify commonalities and patterns across cultures.

HVAC-Heating Ventilation Air Conditioning and Refrigeration Technician

HVAC 150 - Introduction to Tools and Fasteners (1)

Introduction to Tools and Fasteners used in the HVAC/R Industry.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Describe the proper use of basic fasteners commonly used in the HVAC/R Industry.
Properly identify basic tools and equipment required for the HVAC/R Industry.

HVAC 151 - OSHA 30-hour Construction Industry Outreach Training Program (4)

The OSHA 30-hour Construction Industry Outreach Training course is a comprehensive safety program designed for anyone involved in general industry.

Specifically devised for foremen, and field supervisors; the program provides complete information on OSHA compliance issues. Upon completion, students will be issued an OSHA 30 card. Additional training in Refrigeration Handling and Safety Practices.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Accurately identify health hazards and adhere to all related safety policies and procedures in the construction industry.
Accurately list workers' rights, employers responsibilities and proper documentation.
Following OSHA standards, obtain and follow safety data sheets for fire protection/prevention and the handling, storage and disposal of hazardous materials.
Properly identify and list the work-related incident/illness prevention programs, and processes.
Properly identify hazards associated with use of ladders and stairways, confined spaces, cranes and hoists.
Safely and accurately operate powered vehicles, hand tools, lifts and mechanical equipment
Select and use proper Personnel Protection and Life Saving Equipment per OSHA Standards.

HVAC 152 - Basic First Aid and CPR (1)

This course is designed to provide the basic first aid skills necessary to become a lay responder for varying emergencies, including adult/child/infant CPR with AED. Participants will demonstrate CPR and the use of an automated external defibrillator (AED). Upon successful completion of the course, participants will receive a certificate for Adult/Child/Infant CPR/, AED, Bloodborne Pathogens and First Aid valid for two years.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Recognize specific emergency problems (i.e. heart attack, fracture, open wound, choking) through their signs and symptoms to American Heart Association Standards.
Demonstrate the skills needed to Perform Cardiac Pulmonary Resuscitation (CPR), Automated External De-fibrillation (AED), bandaging, and foreign body airway obstruction to American Heart Association Standards.
Identify the decisions involved during an emergency to American Heart Association Standards.
Describe bloodborne pathogens and how to protect oneself in an emergency to American Heart Association Standards.
Recall basic legal concepts as they apply to lay responders, including consent and the purpose of Good Samaritan Laws.

HVAC 153 - Basic Electricity, Magnetism (2)

Basic Electricity, Magnetism

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply basic electrical laws including Ohm's Law to perform basic electrical calculations.
Read and draw basic electrical wiring diagrams to calculate expected outcomes
Wire basic electrical power circuits using lights, relay and switches.

HVAC 154 - Types of Electrical Motors and Applications (4)

This course introduces students to basic electric motors and their applications in the HVAC/R industry.

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Fall, Winter, Spring, Summer.

Outcomes
Wire basic DC motors in electrical circuits.
Wire basic AC motors in electrical circuits.
Select motors for different basic applications, wire and test electrical motors-- both AC and DC.

HVAC 155 - Motor Controls & Troubleshooting (3)

Motor Controls Troubleshooting

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify and correctly select basic electric motor controls for common HVAC/R systems.
Wire basic electric motor controls on both line and control circuits.
Troubleshoot problems in basic electrical control circuits in both line and control systems.

HVAC 156 - Theory of Heat (2)

Theory of Heat

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Winter, Summer.

Outcomes
Describe the properties of energy, heat flow and heat transfer through written exam with a minimum score of 80%.
Identify how atmospheric pressure variations impact pressure measurements in both PSIA and PSIG through written exam with a minimum of 80%.
measure and test various basic HVAC/R systems for cause and effect variance of sytem pressure.
Differentiate the types of energy and their properties in order to identify issues in air and refrigeration systems as they relate to basic HVAC/R systems.

HVAC 157 - Introduction to Automatic Controls, Troubleshooting (3)

Introduction to Automatic Controls, Troubleshooting

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Winter, Summer.

Outcomes
Identify and distiguish between basic automatic HVAC/R controls.
Troubleshoot and repair basic HVAC/R automatic controls.
Build and repair basic HVAC/R automatic controls.
Build and repair common applications of basic low and high voltage controls.

HVAC 158 - Indoor Air Quality, Advanced Controls (3)

Indoor Air Quality, Advanced Controls

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Winter, Summer.

Outcomes
Understand and apply International Fuel Gas Codes to successfully complete written exams.
Following industry standards, design and size gas piping systems used in heating a majority of structures.
Effectively and safely used black iron pipe to cut, thread and pressure test a typical gas piping system.
Successfully pass the City of Seattle Fuel Gas Technician Testing required to work on gas piping in Seattle.

HVAC 159 - Electric & Oil Heat (4)

Electric Oil Heat

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Winter, Summer.

Outcomes
Accurately identify and describe the different types and applications of electric heaters.
Successfully wire an electric furnace to the Air-conditioning, Heating and Refrigeration Institute standards.
Properly identify and describe the different types and applications of oil furnaces as well as oil furnace parts.

HVAC 160 - Gas & Hydronic Heat (3)

Gas Hydronic Heat

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Winter, Summer.

Outcomes
Effectively complete all routine maintenance performance checklists on gas furnaces.
Pass the ESCO Gas Furnace certification exam with 80% or higher score.
Proficiently complete all routine maintenance performance checklists on hydronic heating and cooling systems.
Pass the ESCO Hydronics Systems certificaiton exam with 80% or higher score.

HVAC 161 - Refrigeration, Oil Chemistry, Management, Recovery (2)

Refrigeration, Oil Chemistry, Management, Recovery

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Fall, Spring.

Outcomes
Successfully pass a written test covering the Federal EPA Regulations, minimum score 70%.
Perform safe refrigerant recovery on existing sytems; test and process according to EPA and Department of Transportation (DOT) requirements.
Perform safe oil analysis on refrigerants from existing systems and process according to EPA and DOT requirements.

HVAC 162 - EPA 608 Universal, Leak Detection, System Evacuation (3)

EPA 608 Universal, Leak Detection, System Evacuation

Distribution: Career Training. Prerequisite: HVAC150,HVAC151,HVAC152. Offered: Fall, Spring.

Outcomes
Identify proper refrigerant leak detection methods and how to evacuate a refrigeration system to the EPA standards.
Properly evacuate a refrigeration system.
Successfully pass the EPA 608 Universal Refrigeration Certification Testing by ESCO.

HVAC 163 - Tubing, Piping and Brazing (2)

Tubing Piping and Brazing

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Spring.

Outcomes
Accurately size, cut and assemble refrigeration piping.
Effectively solder and braze refrigeration piping using oxygen/acetylene torches.
Using refrigeration pipe, properly bend, swag and fabricate flared connections.

HVAC 164 - System Charging (4)

System Charging

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Spring.

Outcomes
Evaluate refrigeration systems to industry standards.
Charge a refrigeration system and adjust the charge for proper operating conditions.

HVAC 165 - Refrigeration System Components (5)

Refrigeration System Components

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Spring.

Outcomes
Identify th different compressor types and their common applications used in refrigeration and air conditioning systems through written exam and lab observation, 80% test score or higher is passing.
Accurately perform installation and testing on different compressor types.
Use condenser coils and check for correct air flow for the application used.
Correctly use and adjust mechanical and electrical metering devices on refrigeration systems.
Install evaporator coils and check for correct air flow in the application used.

HVAC 206 - Basic Metal Working (2)

This course is designed to teach students basic metal working practices.

Distribution: Career Training. Prerequisite: HVAC 162 . Offered: 4.

Outcomes
Perform basic heating and cooling load calculations and how to use on line resources for these calculations.
Complete basic duct designs using load calculations and velocity reduction methods with required air flow in a heating and air conditioning system.
Properly select equipment in multiple zones and use load calculations to design HVAC duct systems.

HVAC 207 - Basic Layout & Patterns (2)

This course is designed to teach students how to mark, measure and work with sheet metal.

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: 4.

Outcomes
Perform basic heating and cooling load calculations and how to use on line resources for these calculations.
Complete basic duct designs using load calculations and velocity reduction methods with required air flow in a heating and air conditioning system.
Properly select equipment in multiple zones and use load calculations to design HVAC duct systems.

HVAC 208 - Fabrication Practices (2)

This course is designed for students to learn how to design sheet metal components.

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: 4.

Outcomes
Perform basic heating and cooling load calculations and how to use on line resources for these calculations.
Complete basic duct designs using load calculations and velocity reduction methods with required air flow in a heating and air conditioning system.
Properly select equipment in multiple zones and use load calculations to design HVAC duct systems.

HVAC 209 - Air Balance & Duct Sizing (2)

This course is an introduction to the techniques and procedures used in the residential construction industry to determine proper sizing of HVAC equipment and ducts to meet the requirements for a high-quality, comfortable climate in terms of heating, cooling, humidifying, dehumidifying, ventilation and air cleaning or filtering.

Distribution: Career Training. Prerequisite: HVAC 162 . Offered: 4.

Outcomes
Perform basic heating and cooling load calculations and how to use on line resources for these calculations.
Complete basic duct designs using load calculations and velocity reduction methods with required air flow in a heating and air conditioning system.
Properly select equipment in multiple zones and use load calculations to design HVAC duct systems.

HVAC 251 - Load Calculations & Duct Design (4)

This course is an introduction to HVAC/R Load calculations and duct design. Students will perform load calculations and conplete duct sizing projects.

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Winter, Spring, Summer.

Outcomes
Perform basic heating and cooling load calculations and how to use on line resources for these calculations.
Complete basic duct designs using load calculations and velocity reduction methods with required air flow in a heating and air conditioning system.
Properly select equipment in multiple zones and use load calculations to design HVAC duct systems.

HVAC 260 - Operating Conditions, Introduction to Drafting (4)

Operating Conditions, Introduction to Drafting

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Winter, Spring, Summer.

Outcomes
Introduction to AutoCad
How to read blueprints

HVAC 261 - Special Refrigeration Systems (4)

Special Refrigeration Systems

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Spring.

Outcomes
Accurately identify and build a special refrigaration system mechanical control.
Properly identify and build a special regfrigeration system incorporating temperature controls.
Effectively identify and build a special refrigeration system controlled by pressure controls.
Accurately identify special refrigeration system defrost controls and their applications.

HVAC 262 - Heat Pump Systems, Air and Geothermal (4)

Heat Pump Systems, Air and Geothermal

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Spring.

Outcomes
Accurately identify components commonly used on commercial refrigeration systems and ice machines.
Properly identify special refrigeration systems on transportation refrigeration systems.
Effectively service and troubleshoot special refrigeration systems.
Properly identify special refrigeration systems defrost controls and applications.

HVAC 263 - Domestic Appliances (4)

Domestic Appliances

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Spring.

Outcomes
Accurately build and perform routine maintenance on a split system air source heat pump system.
Effectively set up and perform routine maintenance on a package air source heat pump system.
Properly identify all the required components of a geothermal heat pump system.

HVAC 264 - Commercial Refrigeration Systems & Troubleshooting (4)

Commercial Refrigeration Systems Troubleshooting

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Fall, Spring.

Outcomes
Demonstrate the proper skills necessary to service and maintain domestic freezers.
Demonstrate the proper skills necessary to service and maintain domestic refrigerators.
Demonstrate the proper skills necessary to service and maintain room air conditioners.

HVAC 265 - Comfort, Psychometrics & Energy Auditing (4)

Comfort, Psychometrics Energy Auditing

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Winter, Summer.

Outcomes
Relate eight factors that affect human comfort.
Recall primary psychrometric factors that affect human comfort.
Properly explain how refrigeration and heating can affect human comfort levels.
Perform simple residential energy auditing.

HVAC 266 - Troubleshooting (5)

Troubleshooting

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Winter, Summer.

Outcomes
Accurately identify mechanical problems found on HVAC/R systems and determine the likely causal factors and the proper repairs needed.
Corrrectly identify electrical problems found on HVAC/R systems and determine the likely causal factors and the proper repairs needed.
Properly identify refrigerant problems found on HVAC/R systems and determine the likely causal factors and the proper repairs needed.

HVAC 267 - Chilled Water Systems (3)

Chilled Water Systems

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Winter, Summer.

Outcomes
Properly identify the mechanical components of a chilled water system.
Properly identify electrical components used on chillded water systems.
Correctly identify and test water pumps and flow rates on hydronic systems.

HVAC 268 - Operating, Maintenance, Troubleshooting Chilled Water Systems (4)

Operating, Maintenance, Troubleshooting Chilled Water Systems

Distribution: Career Training. Prerequisite: HVAC 162 & EPA 608 Card. Offered: Winter, Summer.

Outcomes
Demonstrate the skills necessary to effectively operate chilled water systems.
Demonstrate the skills necessary to correctly maintain chillded water systems.
Demonstrate the proper skills needed to analyze chilled water systems faults.

HVAC 292 - Independent Projects (5)

Distribution: Career Training. Prerequisite: Instructor Permission. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate the skills necessary to effectively operate chilled water systems.
Demonstrate the skills necessary to correctly maintain chillded water systems.
Demonstrate the proper skills needed to analyze chilled water systems faults.

HVAC 268 - Operating, Maintenance, Troubleshooting Chilled Water Systems (5)

Distribution: Career Training. Prerequisite: Instructor Permission. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate the skills necessary to effectively operate chilled water systems.
Demonstrate the skills necessary to correctly maintain chillded water systems.
Demonstrate the proper skills needed to analyze chilled water systems faults.

HVAC 296 - Work-based Learning (1-18)

Distribution: Career Training. Prerequisite: Instructor Permission. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate the skills necessary to effectively operate chilled water systems.
Demonstrate the skills necessary to correctly maintain chillded water systems.
Demonstrate the proper skills needed to analyze chilled water systems faults.

IMMA-Machining Apprenticeship AJAC

IMMA 101 - Technical Drawings (5)

In this course, apprentices will learn to read and interpret technical drawings, schematics, sheet metal drawings, bills of materials, parts lists as well as practice basic drafting. Apprentices will begin by interpreting the basic elements of a drawing: line types, symbols, 3rd angle projection, principles of orthographic projection, and normal, detail, sectional, and auxiliary views. Apprentices will use authentic industry drawings to learn to interpret dimensioning and tolerancing on prints, GD & T per ASME Y14 Standards, welding symbols, surface finish, ADCNs, and DCNs. Drawings studied in this class will include machining, fabrication, sheet metal, assemblies and fluid power systems. Apprentices will also learn about various types of threads, fasteners, cams, and gears. Hands¿on activities in this course include creating various types of shop sketches such as creating an original drawing for a sheet metal product, and applying print¿reading knowledge to inspect a part.

Offered: Winter, Spring, Summer, Fall.

IMMA 102 - Lifting and Rigging (5)

In the Lifting and Rigging course, apprentices learn about the practical application and safe operation of lifting equipment commonly used in industrial maintenance such as forklifts, scissor lifts, and cranes. Apprentices usually take this course in the 1st year of the Industrial Maintenance Technician Apprenticeship Program. The curriculum was developed for a 12-week course format and requires additional bigger equipment at the campus location as part of the curriculum such as forklifts, cranes, or overhead hoists, etc. This course also includes the options of a field trip.

Offered: Winter, Spring, Summer, Fall.

IMMA 103 - Precision Machining (5)

The apprentices will explore theory, application, and hands-on experience with precision machining practices for industrial maintenance. Apprentices will explore topics related to manual machine tool setup and operation, for saws, drill presses, engine lathes, milling machines, and grinders. Apprentices will also gain bench work experience, including hole-making and part finishing operation using hand tools. An emphasis will be placed on preventative maintenance and safety in the shop while operating machines and handling tools and materials. Apprentices will plan, machine, and inspect two projects: a C-clamp and a plumb bob.

Offered: Winter, Spring, Summer, Fall.

IMMA 121 - Maintenance Welding (5)

In this course, apprentices will explore theory in the classroom and gain hands-on experience with essential welding and cutting practices commonly used for industrial maintenance applications. Apprentices will explore theory and practice for cutting processes such as oxyfuel cutting, plasma cutting, and ironworker operation. Apprentices will practice welding techniques using the following processes: GMAW (MIG welding), SMAW (stick welding), and OAW. Additional topics include brazing, blueprint reading (welding symbols), repair welding, surfacing, and pipe welding. Apprentices will learn how to properly inspect and set up the equipment before welding, as well as how to prepare materials and various types of joints for welding. Apprentices will also learn about finishing procedures, inspection, and cleanup. The capstone project for this course is a welded steel stepstool that can be used in the home or the shop, which the apprentices will plan out, cut, weld, finish, and inspect. Throughout the course there will be an emphasis on safety, which includes proper attire and personal protective equipment (PPE), as well as potential hazards and necessary safety precautions before, during, and after welding.

Offered: Winter, Spring, Summer, Fall.

IMMA 122 - Electrical Systems (5)

In this course, apprentices will learn about industrial electrical theory, components, and equipment necessary to troubleshoot electrical problems. Apprentices will begin by learning to interpret electrical symbols, diagrams, and terminology. They will explore topics such as electric power, circuits, wiring, and transformers. This course will also cover AC theory, motors, control circuits, industrial electronics, line diagrams, circuit logic and programming, as well troubleshooting techniques. Apprentices will gain hands-on experience with electrical components, circuits, and electrical test equipment used in industry.

Offered: Winter, Spring, Summer, Fall.

IMMA 123 - Machine Automation Theory (5)

This course explores advancing technologies in manufacturing relevant to industrial maintenance with a focus on programmable logic controllers (PLCs). The course begins with a review of electrical and PLC safety. Apprentices will explore topics such as PLC hardware, installation, maintenance, and programming. Apprentices will learn how to troubleshoot problems that occur with PLC hardware and software. This course incorporates hands-on activities that utilize PLC software and simulators.

Offered: Winter, Spring, Summer, Fall.

IMMA 201 - Math for Industrial Maintenance (5)

This course involves the application of mathematics to the industrial maintenance environment. Students will perform standard shop computations and conversions between measurement systems. Relevant mathematical concepts are taken from Algebra, Geometry, and Trigonometry to help students apply formulas and common technical application problems. Basic math skills will be reviewed including

decimals, fractions and conversions between them. This course also includes the use and application of formulas required in industry. Students will learn properties of angles and common geometric shapes and relevant trigonometric functions, and they will be introduced to graphs and statistics.

Offered: Winter, Spring, Summer, Fall.

IMMA 202 - Maintenance Machining (5)

The apprentices will explore intermediate-level theory, application, and hands-on experience with machining practices for industrial maintenance. Apprentices will learn about CNC machines, drives, positioning systems, feedback methods, and sensors, as well as maintenance and safety topics. Apprentices will learn advanced techniques for operating lathes, milling machines, and other machine tools in order to create their culminating project, a gear puller, which they can use maintenance work. Apprentices will explore additional machining topics important for industrial maintenance, such as key seats and keyways, restoring and removing threads and bolts, and fastening and assembly techniques.

Offered: Winter, Spring, Summer, Fall.

IMMA 203 - Mechanical Systems (5)

The apprentices will learn to maintain all of the elements of a mechanical system. Apprentices will begin by exploring mechanical fundamentals such energy, mechanical forces, and simple machines. Apprentices will learn to troubleshoot, assemble, and maintain systems and components such as couplings, bearings, belt and chain drives, gear drives, seals and packing, and clutches and brakes. Apprentices will also learn principles of lubrication and machine vibration. Hands-on activities will involve inspecting and making repair recommendations for mechanical systems found in industry such as gearboxes, worm drives, standard transmissions, and differential drives. Apprentices will also practice coupling alignment skills using a simulation station.

Offered: Winter, Spring, Summer, Fall.

IMMA 221 - Fluid Power Systems (5)

This course explores the fundamental theories and practical application of fluid power systems with a focus on system setup and maintenance. Apprentices will explore the fundamentals of hydraulic and pneumatic systems, including operation, maintenance, and safety, as well as interpreting related standards, symbols, and diagrams. Components of fluid power systems will be covered in detail, such as compressors, motors, piping and hoses, pumps, actuators, and valves. Apprentices will practice their skills in the troubleshooting and repair of hydraulic and pneumatic systems with simulator software and hands-on activities.

Offered: Winter, Spring, Summer, Fall.

IMMA 222 - Materials, Processes, & References (5)

In this course, apprentices will explore metallurgy, material properties and characteristics, related standards, and processes commonly used to manipulate materials. Apprentices will begin by learning about material composition and characteristics of the five basic metals: steel, stainless steel, cast iron, aluminum, and brass (copper). This course will then explore manufacturing processes used to manipulate metals, such as machining, casting, and forging, as well as processes that change their chemical composition, including heat treatment. The apprentices will also learn about and practice inspection techniques such as hardness testing and non-destructive testing (NDT) techniques with modern equipment. Hands-on projects for this course include materials testing, heat treatment, case hardening, casting, and material sample identification projects. Throughout the course, apprentices will research materials and processes in a shop reference, Machinery's Handbook.

Offered: Winter, Spring, Summer, Fall.

IMMA 223 - Mechatronics Capstone (5)

In this course, apprentices will design, build, and implement a mechatronics project that incorporates skills that have been studied and practiced throughout the industrial maintenance technician apprenticeship. Using new and salvaged parts, apprentices will create a robot or automated system that incorporates mechanical systems, fluid power systems, electrical systems, and programmable logic controllers. Coursework will also include research and written reports related to the project. Apprentices will utilize tools and equipment from the industrial maintenance field including hand tools, machine tools, welding equipment, and measuring tools.

Offered: Winter, Spring, Summer, Fall.

IMO Industrial Machine Operator Apprenticeship AJAC

IMO 101 - Safety and Sanitation (5)

This course introduces the concepts of working in a safe and productive food manufacturing workplace. Apprentices explain important OSHA safety standards as well as standard operating procedures to ensure proper sanitation. Apprentices recognize Good Manufacturing Processes (GMPs) and how they relate to food safety. They also demonstrate understanding of how to keep allergens, metals, and other harmful substances out of the food supply. Finally, they practice FDA¿s Hazard Analysis Critical Control Point (HACCP) principles to identify, evaluate, and control food safety hazards in their workplace.

Distribution: Career Training.

IMO 102 - Industrial Maintenance and Mechatronics I (5)

This is the first of two courses that explores the foundational principles and skills of industrial machine maintenance as it relates to a machine operator. Apprentices learn predictive and preventative maintenance of machines. They explain principles of mechanical rigging, including safety, installation, and ways to perform lifts. Students describe the elements of and physical principles behind mechanical, fluid power, pneumatic systems, and electrical systems and how to interpret technical drawings related to these systems. Some of the mechanical systems students learn about include belts and pulleys, chains and gears, and conveyor systems. Apprentices will also explain the fundamental aspects of safety related to electrical circuits.

Distribution: Career Training.

IMO 103 - Industrial Maintenance and Mechatronics II (5)

This is the second of two courses that explores the foundational principles and skills related to industrial machine maintenance. Apprentices apply methodologies such as 5 why, fishbone, and flowcharts to isolate problems and determine strategies for troubleshooting. They describe elements of electronic control systems, including diodes, transistors, and integrated circuits. They demonstrate knowledge of the main components, programming, and maintenance of Programmable Logic Controllers (PLCs) and Human-Machine Interfaces (HMIs). Finally, apprentices explore concepts related to maintenance welding and piping systems.

Distribution: Career Training.

IMO 104 - Quality Assurance (5)

This course introduces the concepts of quality assurance activities, documentation, and inspection practices in the food industry. Apprentices interpret machine operation manuals and learn to perform safety checks to ensure that machines are ready to come online and safety devices are operating correctly. They explain how to read common measurement devices like pressure and temperature gauges, flow meters, fluid gauges, and voltage and current meters. They describe how to compare machine readings with standard operating procedures to determine if machines are performing within specifications. They learn to use their senses to observe machine operation and vibration, determine if machines are operating correctly, and recognize symptoms of malfunction. They also learn when to shut machines down and will explain and perform lockout processes. Apprentices perform quality checks and inspect materials and product/process at all stages to ensure they meet specifications. Finally, they describe how to take corrective actions to restore or maintain quality.

Distribution: Career Training.

IMO 105 - Material Science (5)

This course explores the relationship between the basic principles of science and the safe manufacturing of food products. Apprentices gain an understanding of food science to learn how it applies to their day-to-day jobs. They explain the foundational principles of food chemistry, food microbiology, and food physics and how they relate to food production. Apprentices also study the role of pH in the manufacture of food. They describe the effects of helpful and harmful microorganisms on the food supply and provide examples of food preservation using heat and cold, dehydration and concentration, and irradiation. Apprentices also demonstrate knowledge of the mixing and separating techniques used in food processing. Apprentices will also gain knowledge of what types of

food grade materials are used in food production to maintain good safety and sanitation.

Distribution: Career Training.

IMO 106 - Food Manufacturing Technology (5)

This course explores emerging technology techniques in the food industry and how they relate to preservation, packaging, and manufacturing. Apprentices will describe sorting, peeling, inspection, and sealing. They explain different methods of boxing, sorting, palletizing and how they enhance the efficiency of food production. Apprentices also gain a deeper understanding of preservation by dehydration, and pasteurization, as well as understand the advantages of each of these methods. They will identify and describe various emerging technologies in the manufacturing process of foods.

Distribution: Career Training.

IMT-Apprenticeship

IMT 101 - Industrial Manufacturing Safety (5)

Apprentices will be oriented to the occupation and will learn about foundational safety requirements specific to manufacturing and production. Course content will include basic shop safety, OSHA 10 and CPR/First Aid. The course will introduce the concepts of working in a safe and productive manufacturing workplace, safety, and environmental assessments, emergency drills and emergency teams, unsafe conditions and corrective action, equipment safety training, processes and procedures that support a safe work environment, safety and health requirements for maintenance, installation and repair, monitoring safe equipment and operator performance, and effective safety enhancing workplace practices.

Distribution: Career Training.

IMT 102 - Industrial Manufacturing Basics (5)

Apprentices will apply quality and continuous improvement practices to manufacturing and production. The course will introduce quality assurance, inspection, blueprint reading, interpreting manufacturing documents, precision measurement, and basic tools/equipment use and knowledge. Apprentices will learn the process of periodic or statistically based internal quality audit activities, check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, document the results of quality tests, communicate quality problems, take corrective actions to restore or maintain quality, use common measurement systems and precision measurement tools.

Distribution: Career Training. Prerequisite: IMT101.

IMT 103 - Industrial Manufacturing Production Processes (5)

Apprentices will learn to identify customer needs and required resources for production. They will learn about production, communication, lean manufacturing, problem solving and front line leadership techniques. The course will introduce the set up and operation of machines including tooling and equipment. Apprentices will learn to identify customer needs, determine resources available for the production process, set up equipment for the production process, set team production goals, make job assignments, coordinate work flow with team members and other work groups, communicate production and material requirements and product specifications, perform and monitor the process to make the product, document product and process compliance with customer requirements, and prepare final product for shipping or distribution. Additionally, students will examine emerging industrial technologies and trends in green manufacturing.

Distribution: Career Training. Prerequisite: IMT101, MT102.

IMT 104 - Industrial Manufacturing Machine Maintenance (5)

Apprentices will learn the foundational principles and skills relating to machine maintenance awareness. They will learn to apply principals of welding, basic electricity, and fluid power systems to manufacturing equipment. Apprentices will examine common applications for lubricants, coolants, bearings, couplings, belt drives and chain drives. The course will apply machine control and automation concepts to awareness of machine maintenance. Apprentices will learn how to perform preventive maintenance and routine repair, monitor indicators to ensure correct operations, perform all housekeeping to maintain production schedule, recognize potential maintenance issues with basic production

systems, including knowledge of when to inform maintenance personnel about problems with electrical, pneumatic, hydraulic and other systems.

Distribution: Career Training. Prerequisite: IMT101, IMT102, IMT103.

IRON Ironworker Apprenticeship

IRON 211 - Ironworkers Apprenticeship 1st Year (Variable 0-20)

Distribution: Career Training.

IRON 221 - Ironworkers Apprenticeship 2nd Year (Variable 0-20)

Distribution: Career Training.

IRON 231 - Ironworkers Apprenticeship 3rd Year (Variable 0-20)

Distribution: Career Training.

IRON 241 - Ironworkers Apprenticeship 4th Year (Variable 0-20)

Distribution: Career Training.

INFO-Information Technology Specialist

INFO 101 - Computer Application Essentials (5)

Demonstrate essential skills using core Microsoft Office applications. Create and edit documents using word processing, spreadsheet, presentation, database, email, or other business applications.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate efficient use of word processing application through creating, navigating, and format documents using business procedures
Demonstrate how to create and format tables, insert graphics and print documents as applied in business practices
Demonstrate how to create, format and manipulate numbers and data using business procedures
Demonstrate efficient digital communication techniques using digital communication software
Accurately implement and navigate organized file systems as applied in industry

INFO 102 - IT Applications (4)

This course is an introductory course. It demonstrates essential skills in installing, configuring, maintaining, and applying business software applications used for communication, collaboration, problem-solving, and effective decision-making.

CIP: 11.901

EPC: 527

Prerequisite: none. Corequisite: none. Crosslisted as: Students in Information Technology, Cloud Computing Network Technology, and Cybersecurity programs take this course as part of their foundational courses and to promote well-rounded learning experiences. Offered: Fall, Spring.

Outcomes
Install, configure, and maintain business applications.
Perform efficient processes to create, navigate, and format documents using an industry-standard application.
Manipulate and present numbers and data using an industry-standard application.
Perform effective digital communication techniques using digital communication applications.

INFO 104 - IT Systems I (5)

This course provides a foundation in hardware, safety environment, and customer service in information technology (IT) systems. Students acquire the essential skills to install, configure, optimize, troubleshoot, repair, upgrade, and perform preventive maintenance of computer hardware and applications. Students learn to meet business IT needs within realistic constraints. This course prepares students to take Computing Technology Industry Association (CompTIA) A+ certification exams.

CIP: 11.901

EPC: 527

Prerequisite: none. Corequisite: none. Crosslisted as: Students in Information Technology, Cloud Computing Network Technology, and Cybersecurity programs take this course as part of their foundational courses and to promote well-rounded learning experiences. Offered: Fall, Spring.

Outcomes
Apply computer safety, environmental controls, and fundamental customer service skills as used in the industry.
Install, configure, and troubleshoot PC motherboards, system components, cables and connectors, and peripheral devices as applied in the industry.
Apply features, tools, commands, and technical specifications used in Microsoft Windows, macOS, and Linux operating systems as applied in the industry.
Plan a computer-based system to meet the desired needs within realistic economic, and environmental constraints according to a business-needs scenario.
Apply Windows system tools per industry standards.

INFO 105 - IT Systems II (5)

This course provides a foundation in mobile devices, networking technologies, operating systems, software configuration, and operational procedures. Students use virtual and hands-on labs using the Windows, Linux, and macOS operating systems. Students learn to meet business information technology needs within realistic constraints. This course prepares students to take Computing Technology Industry Association (CompTIA) A+ certification exams.

CIP: 11.0901

EPC: 527

Prerequisite: none. Corequisite: none. Crosslisted as: Students in Information Technology, Cloud Computing Network Technology, and Cybersecurity programs take this course as part of their foundational courses and to promote well-rounded learning experiences. Offered: Winter, Summer.

Outcomes
Maintain mobile device components, features, management, and wireless network connection options as applied in the industry.
Identify network types, ports, protocols, and devices in client and server environments as applied in the industry.
Implement directory services, remote services, updates, and backup methods for the Windows client operating system as applied in the industry.
Implement peripheral device installation, configuration, options, and troubleshooting as applied in the industry.
Implement laptop hardware and components using mobile management strategies as per industry standards.

INFO 116 - Modern Desktop Support I (4)

This course covers an introduction to installing, configuring, customizing, supporting, and updating the Windows operating system as used in a business environment. Students use virtual and hands-on labs to create local users, manage storage, files, and devices, configure network access, and manage and update applications.

CIP: 11.0901

EPC: 527

Prerequisite: none. Corequisite: none. Crosslisted as: Students in Information Technology, Cloud Computing Network Technology, and Cybersecurity programs take this course as part of their foundational courses and to promote well-rounded learning experiences. Offered: Winter, Summer.

Outcomes
Install Windows operating systems and perform post-installation configuration as applied in the industry on a client computer system.
Implementing local users, groups, the configuration of devices, and security settings as applied in the industry on a client computer system.
Configure and troubleshoot network access and resource sharing as applied in the industry on a client computer system.
Manage and update applications as applied in the industry on a client computer system.

INFO 117 - Modern Desktop Support II (4)

This course continues building information technology (IT) skills in installing, configuring, and maintaining Windows clients within a domain infrastructure. Students

will deploy Windows clients, manage identity, access controls, and applications, as well as implement device strategy that meets the business needs of an organization.

CIP: 11.901

EPC: 527

Prerequisite: none. Corequisite: N/A. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Implement Windows deployment in an on-premises or hybrid environment to industry standard.
Identify Active Directory, group policies, and how to secure user accounts in a business environment as applied in the network industry.
Configure, manage, and monitor system and data recovery, and updates using a Windows client operating system as used in a business setting to industry standard.
Configure and manage Windows security options in the Windows client operating system as used in a business setting to industry standard.

INFO 118 - Cloud & Virtualization Technologies (4)

This course is an introduction to the concepts and practical application of desktop virtualization and cloud computing technologies. Students practice hypervisor management, virtual machine deployment, and virtual network configuration. Students create virtual machines in a cloud environment. Upon completion, students should be able to perform tasks related to virtual machine and hypervisor installations and have a foundational understanding of cloud computing.

CIP: 11.0901

EPC: 527

Prerequisite: none. Corequisite: none. Crosslisted as: Students in Information Technology, Cloud Computing Network Technology, and Cybersecurity programs take this course as part of their foundational courses and to promote well-rounded learning experiences. Offered: Fall, Spring.

Outcomes
Identify the purpose of virtualization in a business setting.
Configure virtual guest operating systems and management tools using different operating systems.
Configure a virtual network using server and client virtual machines on s desktop computer.
Identify fundamental concepts of infrastructure in the cloud.
Configure virtual infrastructure in the cloud.

INFO 205 - Security I (5)

This course provides the core knowledge required for a career in information technology and cybersecurity. Students will be introduced to computers, networks, and physical threats to security. They will gain the ability to identify and address security threats, attacks, and vulnerabilities.

CIP: 11.901

EPC: 527

Prerequisite: none. Corequisite: none. Crosslisted as: Students in Information Technology, and Cloud Computing Network Technology programs take this course as part of their foundational courses and to promote well-rounded learning experiences. Offered: Winter, Summer.

Outcomes
Interpret the fundamental concepts of confidentiality, integrity, and availability (CIA) as defined in the CIA triad using industry terminology.
Identify threats, attacks, and vulnerabilities in relation to computer and network security industry standards.
Explain physical and environmental security controls in a business environment and its relation to industry standards.
Implement protection methods to secure hosts and applications in relation to network security industry standards.
Identify authentication and authorization solutions and secure network design as used network security industry standards.

INFO 206 - Security II (5)

The number one concern of computer professionals today continues to be information security. Foundational knowledge of cryptography, wireless threats, and security assessment tools are covered. Focus includes best practices for risk management, risk mitigation, governance, and compliance.

CIP: 11.0901

EPC: 527

Prerequisite: INFO 205 with a 2.0 grade or better. Corequisite: none. Crosslisted as: Students in Information Technology, and Cloud Computing Network Technology programs take this course as part of their foundational courses and to promote well-rounded learning experiences. Offered: Fall, Spring.

Outcomes
Identify basic cryptography concepts, encryption, and hashing algorithms, and the public key infrastructure as applied in industry.
Apply wireless security settings and secure mobile solutions to meet industry standards.
Identify how virtualization and cybersecurity solutions apply to cloud computing in the industry.
Examine how policies, processes, and procedures for incident response address industry standards.
Review the privacy and sensitive data concepts in relation to security concerns in the industry.

INFO 220 - Microsoft Services (4)

This course covers foundational knowledge of a cloud-based solution to facilitate productivity and collaboration in a business setting. The course focus includes Microsoft cloud service offerings, an overview of Microsoft cloud computing, or using the Microsoft Azure portal to create resources that do not require scripting skills. This course combines lectures, demonstrations, and hands-on labs.

CIP: 11.901

EPC: 527

Prerequisite: Passing INFO 118 with a grade of 1.7 or above. Corequisite: none. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Identify cloud-computing types, products, and the benefits of using cloud services to help meet an organization's needs for robust security reliability, and user productivity to industry standards.
Apply Microsoft cloud services' compute, analytics, storage, and networking solutions and their use in the IT industry.
Implement virtual infrastructure, applications, storage, and cloud-based security to using industry standards processes.
Implement Microsoft collaboration technology as to industry standards.

INFO 290 - Independent Project (4)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior coursework and should result in the achievement of advanced learning in the subject area chosen.

CIP: 11.901

EPC: 527

Prerequisite: Prior coursework. Crosslisted as: None. Offered: fall, winter, spring, summer.

Outcomes
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.
Apply knowledge and skills learned through classroom training toward transitioning from school to working in the industry.
Connect theory and technical skills learned through classroom training to analyze and resolve problems within the independent project.

INFO 292 - Independent Projects (5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training.

INFO 296 - Work-Based Learning (1 to 5)

This course is Work-based learning (WBL) allows students

to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.*Instructor Approval Required

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Apply knowledge and skills learned through classroom training towards transitioning from school to working in industry.
Analyze and resolve problems that arise in completing assigned tasks.
Employ effective oral, written, and analytical communication appropriate to role and work environment.
Perform ethically and in a culturally relevant manner as a professional in the workplace environment.
Evaluate own learning through written reports or projects to demonstrate improvement in own skills.

LOG-Logistics-Specialist-Apprenticeship-AJAC

LOG 101 - Operations and Supply Chain Essentials (5)

In this course, students will explore concepts related to various functions within operations and supply chain management. They will develop an understanding of complex processes to be followed to bring a finished product to life for consumers. Students will explain how new demands, advancing technology, changing preferences, and unforeseen circumstances force companies to adapt to survive and create new products. Students will also gain foundational knowledge, including logistics and warehouse management principals, in a non-technical way to help them understand their work.

Distribution: Career Training.

LOG 102 - Advanced Communications (5)

Apprentices are introduced to basic communication concepts relating to the workplace. Concepts include theory and skills practice related to interpersonal, intercultural, and production team communications, technical writing and business communications, phone and email etiquette, and conflict management. Students will create a professional portfolio that includes a resume, examples of skills, accomplishments, and samples of work.

Distribution: Career Training.

LOG 103 - LEAN and 6 Sigma Foundations (5)

In this course, students will be able to relate Lean Six Sigma concepts to production objectives. They will identify waste within the value stream and demonstrate the ability to effectively analyze and present data to co-workers and stakeholders. They will define and apply team leadership tools to aid in process improvement. Students will collect and process customer or internal stakeholder input/requirements and identify key metrics for measuring success. Students will define the DMAIC process and effectively use tools and concepts associated with each phase of the DMAIC process. Finally, they'll employ Lean Six Sigma skills in process improvement projects.

Distribution: Career Training.

LOG 104 - Inventory and Warehouse Management (5)

In this course, students will describe types of inventory and develop an understanding of the financial accounting of inventory. They will also learn where to locate inventory and ways to control its location. Students will explore the uses, advantages, and disadvantages of automated inventory systems such as barcodes and RFID. They will describe ways to manage inventory and explain causes of inventory system failures as well as ways to fix the problems. Students will also explore some of the basic risks of supply chain management as well as solutions to some common problems. Finally, students will explore the importance of warehouse safety by focusing on injury prevention and reporting, forklift safety, and ergonomics.

Distribution: Career Training.

LOG 105 - Enterprise Resource Planning (5)

Enterprise Resource Planning (ERP) refers to a method or type of software that organizations use to manage day-to-day activities. In this course, students will explore ways that ERP is used to efficiently manage demand and procurement. They will explain how ERP is used to quantify resource use, and better plan production jobs and product delivery. Students will use ERP to create invoices to send directly to customers or create and transmit import

and export documentation required for cross-border shipments. Students will also identify how ERP processes enhance collaboration between businesses and vendors, helping to reduce bottlenecks. Students will explore how ERP use can help target inefficiencies in resource use and improve business outcomes. Finally, students will explain how ERP can help organizations adapt during business downturns.

Distribution: Career Training.

MACH-Machinist

MACH 111 - Machine Shop Mathematics I (2)

This Introduction course is a self-paced formath concepts to solve problems common to the machining/manufacturing industry

Distribution: Career Training. Offered: 2.

Outcomes
Calculate using fractions and decimals
Describe units of measurement
Construct geometry using lines and angles
Construct geometry using triangles
Construct geometry using circles and polygons
Calculate using shop algebra
Calculate using trod and Pythagorean theorem

MACH 116 - Introduction to Machining Technology (3)

Students will learn the syllabus, schedule, rules of the shop, Tooling U, emergency procedures, machine safety, and housekeeping.

Distribution: Career Training. Offered: 1.

MACH 117 - Measurement Applications (5)

Students use precision measuring tools such as micrometers, height gages, calipers, gage blocks, and indicators.

Distribution: Career Training. Offered: 1.

Outcomes
Accuracy
and height gages to .001 inch accuracy
calculation for sine bar height, thread wires measurement and height of hole
foundation
Operate common measuring tools such as the micrometer and gages to .0001 inch
Operate measuring tools such as the depth micrometer telescoping/small hole gates
true-up manual machinery and work pieces to establish an accurate machining

MACH 118 - Geometric Dimensioning and Telebanking (5)

This course is an introduction to Geometric Dimensioning and Tolerancing as used in the machine shop environment. Topics presented include symbols, Rule 1 and Rule 2, ANSI Y14.5 and coordinate dimensioning. Position is emphasized.

Distribution: Career Training. Offered: 2.

Outcomes
Memorize the common geometric dimensioning and telebanking symbols
Intemperate common feature control frame
Calculate circulate tolerance zone
Calculate maximum material condition tolerances

MACH 119 - Blueprint Reading II and SPC (5)

This course provides the student with the knowledge and skills to apply advanced dimensioning, tolerancing, practices, and multiple views.

Distribution: Career Training. Offered: 1.

Outcomes
Interpret blueprints views and orthographic projections
Identify common blueprint zymology and drawing practices used in manufacturing
Calculate omitted dimensions on part details of engineering drawings
Interpret thread specifications found on engineering drawings

MACH 120 - Machine Shop Math (5)

Students study elementary geometry, trigonometry, adn

Algebra as they apply to the machine shop.

Distribution: Career Training. Offered: 2.

Outcomes
Solve Algebraic equations as applied to machining principles
Identify geometric shapes and their properties commonly found in engineering drawings
Identify right triangles within engineering drawings
Solve for unknown elements in the right triangle using trigonometric functions

MACH 121 - Lathe Operations II (4)

This course is a continuation of the concepts introduced in MACH 114, students apply more advanced turning skills using taper attachment, single point threading, knurling, boring head, and drill grinding

Distribution: Career Training. Offered: 2.

Outcomes
Set up and machine threads using single point method
Set up and machine a taper using the taper attachment
Set up and bore a taper bore

MACH 122 - Grinding I (2)

In this course students conduct set up and use a surface grinder

Distribution: Career Training. Offered: 1.

Outcomes
Set up and run the surface grinder safely
Surface grind the dimensions of a work piece to an accuracy of +_.002 inch
Surface grind the work piece to perpendicular of within .001 inch

MACH 133 - Milling Operations II (3)

This is a introductory course on the basic metallurgy, including physical and mechanical properties of metal

Distribution: Career Training. Offered: 2.

Outcomes
Describe the metal cutting processes
Recognize the structure, physical, and mechanical properties of metals
Summarize the metal manufacturing processes
Describe the process of heat treating steel
Identify metal classifications

MACH 134 - Advanced Machining I (4)

This course students will demonstrate complex lathe operations

Distribution: Career Training. Offered: 3.

Outcomes
Machine internal tapers
Machine internal and external threads
Machine internal and external diameters to +.002

MACH 137 - Advanced Machining II (2)

This advanced machining course requires students to demonstrate complex lathe operations

Distribution: Career Training. Offered: 3.

Outcomes
Machine internal tapers
Machine internal and external threads
Machine internal and external diameters to + .002

MACH 142 - Advanced Machine Shop Applications (8)

Students plan and produce an advanced project of their own design with permission of teh instructor. This course may only be used as a substitution WBAS 101 for students who are unable to attend WBAS101

Distribution: Career Training. Offered: 4.

Outcomes
Outcomes will vary depending on the goals agreed upon by the student and instructor

MACH 150 - Measurement, Materials, & Safety (5)

This course is an introduction to the fundamental knowledge of standard steel classification, reading of precision measuring devices, heat treating metals, general

shop practices, and inspection techniques in the machine trades. This course is taken concurrently with MACH 155 and MACH 160

Distribution: Career Training.

Outcomes
Identify the personal skills needed for success in the machining field
Define OSHA, NIOSH, HMIS, NFPA, SDS
Solve right triangles using sine, cosine, tangent trigonometric functions as well as the Pythagorean Theorum
Use of precision and semi precision measuring tools entry-level measurement tasks
Recall major AISI/SAE/UNS/AA/IADS designation systems for metals
Demonstrate common heat treatment processes for steels and other metals
Restate importance of a routine maintenance program as it relates to a manufacturing environment
Treat team members respectfully by being polite and constructive in communication

MACH 155 - Job Planning, Bench-work, and Layout (5)

This class is an introduction to develop the skills for process planning, hand operations such as layout, drilling, reaming, sawing, and machine operations such as bandsaw, drill press, and safety standards. Students who complete this coursework are eligible to earn the NIMS credential: Job Planning, Bench-work, and Layout. This course is taken concurrently with MACH 150 and MACH 160.

Distribution: Career Training.

Outcomes
Recall basic symbols and notations used in engineer drawings
Perform basic layout procedures
Describe basic hand-tool safety and precautions per OSHA Standards
Operate band-saw safely with 100% proficiency
Demonstrate safe offhand grinding procedures
Demonstrate the use of drilling, countersinking, spotfacing, counterboring, within +- 1/64"
Define cutting speed and perform speed/feed calculations for hole making operations.
Demonstrate respectful team member skills in a diverse classroom / lab environment

MACH 160 - Conventional Machining (5)

This class is an introduction to conventional machining the majority of this course will occur in the machining lab practicing the basics of chucking applications, milling and lathe setup, operations, and safety standards. Students who complete this coursework are eligible to earn the NIMS credential: Drill Press. This course is taken concurrently with MACH 150 and MACH 155.

Distribution: Career Training.

Outcomes
Demonstrate various toolholding and workholding devices on the lathe
Accurately calculate lathe speeds, feeds and machining time
Demonstrate proper workpiece and tooling setup for thread cutting on the lathe
List primary methods of turning tapers and their benefits and drawbacks
Demonstrate understanding of various cutting tools, tool-holding, and work-holding devises on a milling machine
Accurately square a block on the milling machine
Demonstrate respectful team member skills in a diverse classroom/lab environment

MACH 166 - Conventional Turning (3)

This course is a hands on approach to the knowledge of machining operations on the lathe. Students who complete this coursework are eligible to earn the NIMS credential: Turning; Chucking. Prerequisites MACH 150, MACH 155, MACH 160 are required before taking MACH 166

Distribution: Career Training. Prerequisite:

MACH150,MACH155,MACH160. Offered: 2.

MACH 167 - Conventional Milling (3)

This course is a hands on approach to the knowledge of machining operations on the vertical milling machine. Students who complete this coursework are eligible to earn the NIMS credential: Milling. Prerequisites MACH 150, MACH 155, MACH 160 are required before taking MACH 167.

Distribution: Career Training. Prerequisite: MACH150,MACH155,MACH161. Offered: 2.

MACH 168 - Surface Grinding (3)

This course is a hands on approach to the knowledge of machining operations on the surface grinder. Prerequisites MACH 150, MACH 155, MACH 160 are required before taking MACH 168.

Distribution: Career Training. Prerequisite: MACH150,MACH155,MACH162. Offered: 2.

MACH 213 - Advanced Machining III (5)

This advanced course provides students with the opportunity for practice to machine and assemble complex components

Distribution: Career Training. Offered: 3.

Outcomes
Machine components of complex assembly
Calculate pin dimensions and measure dove tail details
Assemble machined components checking for fit and function

MACH 224 - CAM II (5)

Students will perform geometry creation (CAD) and 2.5D toolpath creation (CAM).

Distribution: Career Training. Offered: 5.

Outcomes
Create wire frame and solids using lines, arcs and solid primitives in CAD
Create tool path code for CNC machining using CAM software

MACH 232 - Advanced CNC Machining (5)

This course is a continuation of the concepts introduced in MACH 232, students work on advanced CNC machining project

Distribution: Career Training. Offered: 6.

Outcomes
Create CAD geometry using lines and arcs
Create CNC toolpath from CAD geometry using CAM
Setup and execute a 4th axis program on the CNC milling machine

MACH 292 - Independent Project (1 to 5)

This course offers students an opportunity to work idependently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. This project may be completed in a work-based enviroment. PREREQUISITE: Instructor permission is required to enroll in this course.

Distribution: Career Training.

MACH 293 - Independent Project (1 to 5)

This course offers students an opportunity to work idependently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. This project may be completed in a work-based enviroment. PREREQUISITE: Instructor permission is required to enroll in this course.

Distribution: Career Training.

MACH 294 - Independent Project (1 to 5)

This course offers students an opportunity to work idependently on a project that is determined by both the

instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. This project may be completed in a work-based enviroment. PREREQUISITE: Instructor permission is required to enroll in this course.

Distribution: Career Training.

MACH 296 - Work-Based Learning Experience (1 to 13)

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider. PREREQUISITE: Instructor permission is required to enroll in this course

Distribution: Career Training.

MATH - Quantitative and Symbolic Reasoning

MATH& 107 - Math in Society (5)

Applies mathematics to contemporary issues. Topics include problem solving, statistics, growth models and finance. Other topics will be chosen from the following: logic, voting methods, historical mathematics, graph theory, cryptography, fractals, geometry, measurement, sets

Distribution: General Education. Prerequisite: MATH98 or placement.

MATH& 141 - Precalculus I (5)

In this course students solve functions, function operations, rational, polynomial, exponential, logarithmic and linear functions and equation solving, function graphs, matrices and determinants, sequences and series.

Distribution: General Education.

Outcomes
Perform operations and composition of functions including finding the inverse.
Analyze the graphs of functions and determine their properties including intercept, domain and range and transformations.
Solve application questions on linear and quadratic functions.
Use the properties of exponents and logarithms to solve equations.
Solve application problems which can be modeled on exponential growth or decay.
Solve systems of linear equations in two or three variables.
Express general terms of sequences.

MATH& 142 - Precalculus II (5)

Right and oblique triangle trigonometry, circular functions, graphs of trigonometric functions, identities, inverse trig functions, vectors and polar coordinates, and parametric equations

Distribution: General Education. Prerequisite: Placement or MATH&141.

MATH& 146 - Statistics (5)

This course is designed to teach the student counting rules, probability, mean and standard deviation, graphing, confidence intervals, hypothesis testing and regression analysis. Also applications in business, health and technology

Distribution: General Education. Prerequisite: Placement or MATH 098.

MATH& 151 - Calculus I (5)

Limits and limit laws, continuity, tangents and rates of change, derivatives using definition and differentiation rules for polynomial, exponential, trigonometric, logarithmic and transcendental functions, max/min problems, L'Hospital's rule, Newton's method and antidifferentiation.

Distribution: General Education. Prerequisite: Placement or MATH&142.

MATH& 152 - Calculus II (5)

Course content includes the Fundamental Theorem of Calculus, definite and indefinite integrals, methods of integration, applications of integration, and improper integrals. The course also includes an introduction to first order differential equations, antiderivatives, definite and indefinite integrals, and methods of integration.

Distribution: General Education. Prerequisite: MATH& 151.

MATH& 153 - Calculus III (5)

Emphasizes the study of infinite sequences and series including power series. Topics include plane analytic geometry, graphing in polar coordinates, and an introduction to vectors.

Distribution: General Education. Prerequisite: MATH& 152.

MATH 171 - Technical Math (5)

Application of linear and quadratic equations, systems of equations, geometry and trigonometry and vectors and their applications in the technical workplace.

Distribution: Gen-Ed. Prerequisite: Placement or MATH092.

MATH 172 - Business Math (5)

Equation solving, exponents, markup, income tax, compound interest, logarithms and finding time, annuities, amortization and business statistics.

Distribution: Gen-Ed. Prerequisite: Placement or MATH092.

MATH 173 - Early Childhood Math (5)

Mathematics for Early Childhood Educators focuses on the conceptual understanding, connections between and the application of math concepts. Concepts include number systems and computation, geometry, measurement, data analysis, probability and statistics, and problem solving. Emphasis is placed on the ability to communicate mathematical concepts in ways appropriate for young children.

Distribution: Gen-Ed. Prerequisite: Placement or MATH092.

MATH 174 - Math for Allied Health (5)

Mathematical concepts for allied health fields including systems of measurement, use of formulas, ratios and proportions in health applications; and basic statistics

Distribution: Gen-Ed. Prerequisite: MATH92.

Below 100 Level

MATH 86 - Pre-Algebra I (5)

This course is designed to prepare students for college-level mathematics by providing an introduction to algebra concepts involving order of operations, exponents, signed numbers, linear equations, variables, coefficients, and the application of these skills. In addition, this course will review fractions, complex fractions and decimals.

Distribution: Gen-Ed. Prerequisite: Placement.

MATH 87 - Pre-Algebra II (5)

This five-credit course is designed to prepare students for college-level mathematics by providing an introduction to algebra concepts involving rations and proportions, percents, graphing, and statistics, geometry and measurement, and exponents and polynomials.

Distribution: Gen-Ed. Prerequisite: Placement or MATH086.

MATH 92 - Elementary Algebra (5)

Exponents and orders of operations, solving linear equations, operation of polynomials, graphing linear equations, solving systems of linear equations and solving inequalities.

Distribution: Gen-Ed. Prerequisite: Placement or MATH087.

MATH 98 - Intermediate Algebra (5)

Advanced factoring, solving quadratic equations, rational expressions, operations and equations; systems of equations; radical equations and expressions

Distribution: Gen-Ed. Prerequisite: Placement or MATH092.

MEAT Meat Cutters Apprenticeship

UEMJA

MEAT 101 - Introduction to Meat (4)

Quarter 1 is an introduction to meat cutting. Students will examine safety and regulations around the industry as well as tools and equipment commonly used on the work site.

MEAT 102 - Forequarter Cuts (4)

This course dives deeper into various cuts, breaking apart the front primal section of the cow and cross contamination of the workflow.

MEAT 103 - Seafood Sustainability and Merchandising (4)

This course looks at the history of seafood, our local seafood industry and how it affects our local and state economy. It is an examination of seafood sustainability, wild and farm raised.

MEAT 104 - Hindquarter Cuts (4)

This course is about identifying and processing hindquarter cuts and how to merchandise these cuts. It will also look at the use of cuts in popular cultural dishes.

MEAT 201 - Pork & Further Processed Meats (4)

This course will cover identification and processing of pork retail cuts and byproducts; the HACCP (Hazard Analysis Critical Control Point System) standards and how it pertains to the industry; and merchandising of pork byproducts and ingredient cuts.

MEAT 202 - Veal, Lamb, Buffalo and Imports (4)

This course involves learning about various types of meats and how culture affects processing. It will also go over identifying and understanding the Australian, Canadian and Mexican labeling systems and grading.

MEAT 203 - Industry and Leadership (4)

This course takes a deep dive into the industry looking at innovations and the management of the meat shop. It will also focus on interpersonal communication and understanding industry trends.

MEAT 204 - Poultry, Holiday and Merchandising (4)

This course pertains to how and when to order various special holiday items and best practices for keeping meat safe for consumers.

MET-Mechanical Engineering Technology

MET 105 - Orthographic Projections (7)

Working with the "glass box" concept of orthogonally projecting an object to the six planes of view, students discuss the necessity of strict adherence to the American Standard Arrangement of views. First angle projection, used primarily in Europe and Asia, are also discussed

Distribution: Career Training. Offered: 2.

Outcomes
Identify the six basic views
Construct orthographic projections using the miter-line method
Apply run-outs to intersection surfaces
Draw different hole processes, counter-bore, counter-sink, and spot-face

MET 108 - Principles of Dimensioning (4)

Students study the standards set for dimensioning set by the American National Standards Institute (ANSI) and the American Society of Mechanical Engineers (ASME) in order to understand the principals of proper dimensioning practices. They will then apply those practices to the dimensioning of drawing previously created

Distribution: Career Training. Offered: 3.

Outcomes
Determine dimensions of a part in a blueprint
Determine vertical distances
Apply proper dimensioning techniques
Apply the principles of geometric dimensioning and telebanking to machine part detail drawings

MET 111 - Geometric Dimensioning and Tolerancing (5)

Tolerance dimensions allow the specification of a range of accuracy for the shape, size and/or position of features of a product. Students apply tolerances as they consider fit between mated parts, how features will be inspected, and how to place tolerance symbols on a drawing using CAD software

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Winter.

Outcomes
Dimension circles, arcs, cylinders, and cones
Describe contour dimensions and geometric breakdowns
Apply the proper rules and procedures that are used by drafters to produce usable working drawings with size and location information
Apply geometric principles to technical drawings
Select proper view for each dimensional features

MET 130 - Manufacturing Methods (5)

This course focuses on the introduction to mechanical manufacturing methods by which materials are economically processed into different shapes. The overall goal is to develop an understanding of how the functionality, shape, materials and cost of a product influence manufacturing process design.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Spring.

Outcomes
Recognize features of a design and manufacturing process used to create these features.
Describle a component in an engineering drawing and explain processes used to manufacture the component.
Execute the manufacturing of a component.
Analyze a manufactured part and differentiate the part from the engineering drawing.
Select manufacturing processes given a component.
Design a component and develop a plan for manufacturing of the component.

MET 140 - Mechanical Measurements (5)

This course is designed to introduce students to the function, operation, and application of common mechanical engineering instruments, measurement principles, and statistical analysis. Major elements of measurement systems, including transduction, signal conditioning, and data recording. Function and operation of digital data acquisition systems.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Summer.

Outcomes
Analyze measurement data based on industry standards.
Evaluate measurement data results and decide on the validity of the data.
Develop a measurement plan that would make recommendation on the measurement, sensors used and data analysis methods.
Explain the fundamentals of mechanical measurements and an overview of the process of measurement.
Remember the types of sensors used for mechanical measurements and what the sensors measure.
Demonstrate the ability to use sensors to collect measurement data.

MET 202 - Threads, Fasteners and Springs (3)

Students draw detailed, schematic and simplified threads for all thread forms common to industry. Thread specifications are examined thoroughly as are standard and specialized screw/bolt head types. Helical springs (compression, extension and torsion) are also examined

Distribution: Career Training.

Outcomes
Calculate tolerances
Interpret revision notes and specific notes on annotated production drawings
Apply the principles of geometric dimensioning and tolerancing to machine part detail drawings
Create symbol libraries with attributes

MET 210 - Duct Fitting Symbols (3)

Students study common sheet metal duct fittings and develop computer-aided-drafting (CAD) symbols appropriate for industry applications

Distribution: Career Training.

Outcomes
develop detailed drawings of ventilation systems
Identify duct system characteristics for airflow requirements
Identify common transitions

MET 214 - Engineering Projects I (7)

This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Create special engineering projects

MET 216 - Engineering Projects II (7)

This course is an independent study in special projects to give students additional training in a specific area selected by the instructor. Emphasis is on individual student needs to improve or expand skills in a variety of areas

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Create special engineering projects

MET 218 - Introduction to 3 D Modeling (5)

This course is an introduction to creating 3D CAD models using feature-based, parametric solid-modeling design; base, boss and cut features using extruded, revolved, simple swept and lofted shapes; capturing design intent using automatic or user-defined geometric and dimensional constraints; detail and assembly drawings.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Winter.

Outcomes
Gain basic concepts and understanding of tools related to 3D modeling and design
Apply beginner skills in 3D modeling as it relates to engineering design
Identify the fundamentals of strong 3D design in a digital environment.
Define basic concepts utilizing industry terminology as explained in educational resources
Create 3D solid models of mechanical components using CAD software
Demonstrates evidence of adjustment in own attitudes and beliefs because of working within and learning from diversity of communities and cultures.

MET 260 - Advanced CAD Operations (5)

This is an advanced CAD systems course, including 3D concepts, are used to produce engineering drawings using layers, masks, and groups. symbols and x-references are applied.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Spring.

Outcomes
Read and create drawings using industry standard dimensioning techniques, from design concept through completed drawings
Draw, edit, and manipulate drawings using CAD
Use advanced tools to create complex and sophisticated CAD drawings
Plot and publish scaled, fully annotated and dimensioned CAD drawings
Demonstrates evidence of adjustment in own attitudes and beliefs because of working within and learning from diversity of communities and cultures.

MET 291 - Practical Applications (1 to 13)

This course offers students an opportunity to work on a lab-based project instead of a work-based learning

component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. *Instructor Approval Required

Distribution: Career Training. Prerequisite: INSTR APP REQ.

Outcomes
Create special engineering projects

MET 292 - Independent Projects (1 to 13)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.*Instructor Approval Required

Distribution: Career Training. Prerequisite: INSTR APP REQ.

Outcomes
Create special engineering projects

MET 293 - Independent Projects (1 to 5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.*Instructor Approval Required

Distribution: Career Training. Prerequisite: INSTR APP REQ.

Outcomes
Create special engineering projects

MET 294 - Independent Projects (1 to 5)

This course offers students an opportunity to work independently on a project that is determined by both the instructor and the student. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.*Instructor Approval Required

Distribution: Career Training. Prerequisite: INSTR APP REQ.

Outcomes
Create special engineering projects

MET 296 - Work-based Learning Experience (1 to 13)

Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of businesses/industries in the area. The learning activity is based on a written agreement with the participating training provider.

Distribution: Career Training. Prerequisite: AMATH 170, ENGR& 111, ENGR& 112. Offered: Fall, Winter, Spring, Summer.

MET 297 - Work-based Learning Seminar (1 to 2)

Students enroll in the work-based learning seminar in order to receive an orientation to the work-based learning experience. Faculty meet with the students to provide support and assistance during the experience.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

MT-Industrial-Manufacturing-Technician-Apprenticeship-AJAC

MT 101 - Industrial Manufacturing Safety (5)

Students will be oriented to the occupation and will learn about foundational safety requirements specific to manufacturing and production. Course content will include basic shop safety, OSHA 10 and CPR/First Aid. The course will introduce the concepts of working in a safe and productive manufacturing workplace, safety, and environmental assessments, emergency drills and emergency teams, unsafe conditions and corrective action, equipment safety training, processes and procedures that support a safe work environment, safety and health requirements for maintenance, installation and repair, monitoring safe equipment and operator performance, and effective safety enhancing workplace practices.

Distribution: Career Training.

MT 102 - Industrial Manufacturing Basics (5)

Students will apply quality and continuous improvement practices to manufacturing and production. The course will introduce quality assurance, inspection, blueprint reading, interpreting manufacturing documents, precision measurement, and basic tools/equipment use and knowledge. Students will learn the process of periodic or statistically based internal quality audit activities, check and document calibration of gauges and other data collection equipment, suggest continuous improvements, inspect materials and product/process at all stages to ensure they meet specifications, document the results of quality tests, communicate quality problems, take corrective actions to restore or maintain quality, use common measurement systems and precision measurement tools.

Distribution: Career Training.

MT 202 - Communications (5)

Apprentices are introduced to basic communication concepts relating to the workplace. Concepts include theory and skills practice related to interpersonal, intercultural, and production team communications, technical writing and business communications, phone and email etiquette, and conflict management. Students will create a professional portfolio that includes a resume, examples of skills, accomplishments, and samples of work.

Distribution: Career Training.

NUTR-Nutrition

NUTR& 101 - Intro to Nutrition (5)

Study of human nutrition and health. Topics include digestion, absorption and processing nutrients in the body; chemistry and functions of the major nutrients: carbohydrates, fat, protein; vitamin and mineral functions; food, culture and diet, energy balance, diet and metabolism; fitness and health; nutrition of the life cycle, food safety and local and world hunger issues

Distribution: General Education.

OPENG Construction Equipment Operator Apprenticeship JATC

OPENG 211 - Operating Engineers Apprenticeship 1st Year (0-36)

Distribution: Career Training.

OPENG 221 - Operating Engineers Apprenticeship 2nd Year (0-32)

Distribution: Career Training.

OPENG 231 - Operating Engineers Apprenticeship 3rd Year (0-30)

Distribution: Career Training.

OPENG 241 - Operating Engineers Apprenticeship 4th Year (0-34)

Distribution: Career Training.

OS Operations-Specialist-Apprenticeship-AJAC

OS 102 - Advanced Communications (5)

Apprentices are introduced to basic communication concepts relating to the workplace. Concepts include theory and skills practice related to interpersonal, intercultural, and production team communications, technical writing and business communications, phone and email etiquette, and conflict management. Students will create a professional portfolio that includes a resume, examples of skills, accomplishments, and samples of work.

Distribution: Career Training.

OS 103 - LEAN and 6 Sigma Foundations (5)

In this course, students will be able to relate Lean Six Sigma concepts to production objectives. They will identify waste within the value stream and demonstrate the ability to effectively analyze and present data to co-workers and stakeholders. They will define and apply team leadership tools to aid in process improvement. Students

will collect and process customer or internal stakeholder input/requirements and identify key metrics for measuring success. Students will define the DMAIC process and effectively use tools and concepts associated with each phase of the DMAIC process. Finally, they'll employ Lean Six Sigma skills in process improvement projects.

Distribution: Career Training.

OS 104 - Manufacturing Leadership Development (5)

Students will develop tools to identify and communicate the evolving purpose of their organization. They will be able to provide guidelines to develop team unity towards that purpose. Students will adopt skills to empower team members and lead them to personal and professional growth. They will use planning tools to help manage change and work toward continued positive results. Students will explain and practice leadership best practices, including mentorship, creating specific and evolving goals, creating a work culture aligned for success, motivation techniques, and conflict resolution. This course introduces interpersonal communication skills critical to leaders, including running effective and productive meetings, developing active listening skills, contributing to group decision making, and strategies for presenting to a hostile audience.

Distribution: Career Training.

OTA-Occupational Therapy Assistant

OTA 102 - Health and Wellness and the OTA (3)

Principles and strategies for managing health and promoting wellness are practiced. Importance of balancing areas of occupation for success in occupational roles are examined and applied

Offered: Fall.

Outcomes
Demonstrate use of principles and strategies for self management, time management, stress management that promote personal health and wellness.
Identify learning style and effective learning strategies and study skills
Identify common health conditions, symptoms and etiologies related to OT.
Demonstrate knowledge of global social issues and prevailing health and welfare needs of populations with or at risk for disabilities and chronic health conditions.
Articulate the importance of balancing areas of occupation with the achievement of health and wellness for the clients.
Explain the role occupation in the promotion of health and the prevention of disease and disability for the individual, family and society.
Demonstrate an understanding of support for the quality of life, well-being, and occupation of the individual, group or population to promote physical and mental health and prevention of injury and disease considering the context and environment.

OTA 103 - Functional Movement (5)

This course covers basic principles of kinesiology, biomechanics, and associated biological systems related to daily living activities. Techniques for body mechanics, safety and mobility, energy conservation, task simplification are covered. Upper extremity functions for everyday tasks are emphasized

Prerequisite: OTA program prerequisites. Crosslisted as: n/a. Offered: Fall.

Outcomes
Describe functions of bones, joints, ligaments and muscles and planes of motion.
Locate and palpate key bones, joints, tendons, ligaments and muscles with emphasis on the upper body.
Describe types of muscular actions and planes of motion.
Analyze human motion involved in daily living activities-dressing, grooming, eating, and housekeeping tasks.
Perform ROM evaluation using a goniometer according to established procedure.
Perform functional manual muscle testing according to established procedure with emphasis on upper extremities.
Demonstrate the ability to safely position, support, and transfer clients by means of the teaching-learning process.
Relate normal vs. impaired movement to its effect on daily activities.
Demonstrate the ability to train others on how to safely position and transfer clients to promote functional mobility while highlighting the unique nature of OT to assist with these tasks

OTA 104 - Therapeutic Use of Self (5)

The focus of this course is to explore personal values and cultural attitudes that relate to individual performance, group interactions and therapeutic use of self for the establishment of therapeutic relationships. Group roles, learning styles, leadership, and communication styles will be examined in a variety of ways. Students develop basic skills for observation, interviewing, communicating with their cohort but also with the population we serve. Personality, insights, perceptions and judgments as part of the therapeutic process are covered and addressed to ensure success as occupational therapy practitioners.

Offered: Fall.

Outcomes
Identify personal learning style and develop awareness of different learning styles.
Identify strategies for decision-making and conflict resolution.
Identify and demonstrate effective communication and interpersonal skills.
Use basic observation skills and interviewing techniques.
Identify personal and professional leadership abilities and competencies as they relate to job responsibilities.
Use sound judgment in regards to safety of self and others in the classroom and outside.
Demonstrate a basic understanding of the therapeutic use of oneself, including one's personality, insights, perceptions and judgments, as part of the therapeutic process in both individual and group interaction and how it is used as a tool for therapy.
Develop awareness of and sensitivity to different cultures, values, ethnicity and abilities.
Demonstrate knowledge and appreciation of the role of sociocultural, socioeconomic, and diversity factors and lifestyle choices in contemporary society. Identify the potential impact of current policy issues and these factors on the practice of OT.

OTA 105 - Nervous System Function (4)

Basic principles of neurology and associated sensory and cognitive systems related to daily living activities. Deficits in sensory, perceptual and cognitive functioning and effects on occupational performance are examined

Offered: Winter.

Outcomes
Demonstrate knowledge and understanding of the basic structural, physiological and organizational elements of both the central and peripheral nervous systems.
Demonstrate knowledge and understanding of the basic functions of the nervous system, brain and sensory-perceptual systems.
Identify common pathologies associated with the CNS and PNS and how it relates to a client's physical and mental health and ability to participate in occupations.
Utilize literature and research review to articulate the importance of scholarly activities to the development of occupational therapy profession, including seeking quality source information

OTA 108 - Applied Experience I - A (1)

Students participate in observations and guided practice opportunities for applying OT principles in traditional and nontraditional settings

Offered: Winter.

Outcomes
Gather and share data for the purpose of screening and evaluation including, but not limited to, specified screening tools, assessments, skilled observations, checklists, histories, consultations with other professionals, and interviews with the client, f
Develop skill and ability in observation, asking questions, effective interpersonal relationships, communication skills, and retrieving client information.
Cultivate professional responsibility in appropriate dress, appropriate behavior, confidentiality of information, and responsibility to client, facility/environment and self.
Develop knowledge and understanding of physical, organizational and therapeutic structure of the environment, the role of occupational therapy in the evaluation and treatment of clients, ethical considerations in the practice of occupational therapy and t
Cultivate therapeutic use of self, as identified by developing empathy, developing an appreciation of sociocultural, socioeconomic and diversity of others, and adjusting feelings and behavior for therapeutic gain

OTA 110 - Documentation Skills (3)

Students learn about record keeping, progress note writing, and assisting the OT with functional goals and objectives for various OT settings. Overview of terminology of assessment results and treatment plans covered.

Prerequisite: All first quarter OTA classes. Crosslisted as: N/A. Offered: Winter.

Outcomes
Document occupational therapy services to ensure accountability of service provision and to meet standards for reimbursement of services, adhering to applicable facility, local, state, federal, and reimbursement agencies.
Documentation must effectively co
Documentation must effectively communicate the need and rationale for occupational therapy services and must be appropriate to the context in which the service is delivered
Demonstrate knowledge of various reimbursement systems (e.g., federal, state, third-party, private-payer) and documentation requirements that affect the practice of occupational therapy.
Understand the documentation of ongoing processes for quality improvement and implementation of program changes as needed to ensure quality of services.
Demonstrate the ability to utilize basic components of electronic documentation systems to include locating information and documenting within the system

OTA 111 - Introduction to Occupational Therapy (5)

This course provides an overview of the OTA program and the profession and the roles and responsibilities of OT practitioners in health care, community-based settings and school systems. Basic terminology, principles, philosophies and ethics are introduced for a better understanding of occupational therapy, the clients served, and other health care professionals working in the settings. Students gain computer literacy skills and library skills for accessing information about professional issues

Prerequisite: OTA program prerequisites. Crosslisted as: N/A. Offered: Fall.

Outcomes
Articulate understanding of the Occupational Therapy Practice Framework, 4th Edition and its application to clinical reasoning within the occupational therapy process.
Describe the profession of occupational therapy.
Describe the meaning of occupation and activity and how these relate to the profession.
Articulate and describe the importance of the foundation, history and philosophical base of the profession.
Describe how occupational therapy history and occupational therapy theory and the sociopolitical climate influence practice.
Define the basic features of theories that underlie the practice of OT.
Describe the value of occupation and the unique nature of OT to audiences
Understand and articulate the occupational profile, including participation in activities that are meaningful and necessary for the client to carry out roles in home, work, and community environments.
Apply knowledge of the American Occupational Therapy Association Occupational Therapy Code of Ethics and AOTA Standards of Practice to guide ethical decision making in practice.
Explain and give examples of how the role of a professional is enhanced by knowledge of and involvement in international, national, state, and local occupational therapy associations and related professional associations

OTA 112 - Therapeutic Activities I (4)

This course covers areas of human occupation through analysis of activities of daily living- work, leisure, play and self-care. Students develop an understanding of the nature and value of occupation to support client participation and performance through therapeutic crafts and daily living activities.

Offered: Winter.

Outcomes
Articulate the influence of social conditions and the ethical context in which humans choose and engage in occupations.
Express support for the quality of life, well-being, and occupation of the individual, group or population to promote health and prevention of injury and disease considering context and environment
Provide therapeutic use of occupation and activities (e.g., occupation-based activity, practice skills, preparatory methods).
Demonstrate task analysis relative to areas of occupation, performance skills, performance patterns, activity demands, context(s) and client factors to implement the intervention plan.
Demonstrate a variety of activities that can be utilized and graded within the therapeutic environment.

OTA 113 - Therapeutic Activities II (4)

This course is the second of two courses with the same focus. It is an advanced course to develop creative problem-solving, clinical reasoning, and documentation skills through exposure to barriers for safety and independence. Grading and adaptation of activities are explored more in depth. Models and theories of occupation are applied and the effects on performance are examined. Students examine universal design principles and environmental modifications for work, home and the community.

Offered: Spring.

Outcomes
Apply models of occupational performance and theories of occupation.
Understand and describe cultural influences on use of various therapeutic activities.
Grade and adapt the environment, tools, materials, occupations, and interventions to reflect the changing needs of the client and the sociocultural context.
Practice effective interaction through written, oral, and nonverbal communication with the client, family, significant others, colleagues, other health providers, and the public in a professionally acceptable manner.
Learn to use the teaching–learning process with the client, family, significant others, colleagues, other health providers, and the public.

OTA 202 - Psychosocial Dysfunctions : Treatment and Applications (8)

This course focuses on the further development of

observation, assessment skills, task analysis and interventions for individuals with psychosocial challenges. Quality of life and meaningful occupations are emphasized. Conditions that lead to psychiatric and social-emotional challenges are examined. Clinical features, medical management and issues impacting OT are covered.

Prerequisite: All first, second, and third quarter OTA classes. Crosslisted as: n/a. Offered: Summer.

Outcomes
Demonstrate knowledge and understanding of the concepts of human behavior to include the behavioral and social sciences (e.g., principles of psychology, sociology, abnormal psychology) and occupational science.
Understand the effects of physical and mental health, heritable diseases and predisposing genetic conditions, disability, disease processes, and traumatic injury to the individual within the cultural context of family and society on occupational performance.
Apply theories and models of occupational performance, to guide and inform OT mental health interventions
Gather and share data for the purpose of screening and evaluation methods including learning to administer selected assessments using appropriate procedures and protocols (including standardized formats), skilled observations, occupational histories, consultations with other professionals, interviews with clients, families and significant others, and use occupation for the purpose of assessment.
Demonstrate the ability to assist with the development of occupation-based intervention plans (including goals and methods to achieve them) through clinical reasoning based on the stated needs of the client as well as data gathered during the evaluation process in collaboration with the client and others.
Identify methods and strategies for providing development, remediation, and compensation for functional cognitive, psychosocial, and behavioral health deficits affecting occupational performance
Select and provide direct occupational therapy interventions and procedures to enhance safety, health and wellness, and performance in ADLs, IADLs and other areas of occupation
Identify intervention strategies or settings that take into consideration sociocultural, socioeconomic and lifestyle choices to meet the needs of clients.
Explain the distinct nature of occupation and the evidence that occupation supports performance, participation, health and well-being

OTA 203 - Applied Experience I - B (1)

Students participate in observations and guided practice opportunities for applying OT principles in traditional and nontraditional settings

Offered: Spring.

Outcomes
Gather and share data for the purpose of screening and evaluation including, but not limited to, specified screening tools, assessments, skilled observations, checklists, histories, consultations with other professionals, and interviews with the client,
Develop skill and ability in observation, asking questions, effective interpersonal relationships, communication skills, and retrieving client information.
Cultivate professional responsibility in appropriate dress, appropriate behavior, confidentiality of information, and responsibility to client, facility/environment and self.
Develop knowledge and understanding of physical, organizational and therapeutic structure of the environment, the role of occupational therapy in the evaluation and treatment of clients, ethical considerations in the practice of occupational therapy and t
Cultivate therapeutic use of self, as identified by developing empathy, developing an appreciation of sociocultural, socioeconomic and diversity of others, and adjusting feelings and behavior for therapeutic gain.
Provide therapeutic use of self, including one’s personality, insights, perceptions, and judgments as part of the therapeutic process in both individual and group interaction

OTA 204 - Seminar - Applied Mental Health (1)

This course focuses on the applied mental health in fieldwork experiences, by articulating the physical components of individual/group function within the context of occupational therapy practice, based on skilled observations. Reflection on the ethical considerations within occupational therapy practice, including use of the AOTA Code of Ethics and Standards of Practice to make informed clinical and employment decision, including strategies for analyzing issues and making decisions to resolve personal and organizational ethical conflicts.

Prerequisite: All first and second quarter OTA classes. Crosslisted as: n/a. Offered: Spring.

Outcomes
Articulate the role of the occupational therapy assistant and occupational therapist in screening and evaluation process along with the importance of the rationale for supervision and collaborative work between the occupational therapy assistant and occupational therapist in that process.
Identify principles of effective interprofessional team dynamics to plan, deliver, and evaluate care, programs, and policies that are safe, timely, efficient, effective and equitable.
Recognize and communicate the need to the OT for referral to specialists
Determine ways to promote policy development as they relate to occupational therapy by exploring factors and issues that affect delivery of OT services
Explain the implications and effects of the systems and structures that create federal and state legislation and regulations have on persons, groups and populations as well as practice.
Describe how the role of an OT practitioner is enhanced by participating and engaging in local, national and international leadership positions in organizations or agencies.
Describe how the role of an OT practitioner is enhanced by participating and engaging in local, national and international leadership positions in organizations or agencies.

OTA 205 - Adaptive Technologies (4)

Adaptive technology used in occupational therapy setting is explored through laboratory practice and field site visits. Low technology such as prosthetics, positioning equipment and adaptive aides for daily living to more advanced computer technology utilized for environmental control and augmentative communication are covered

Prerequisite: All first and second quarter OTA classes. Crosslisted as: n/a. Offered: Spring.

Outcomes
Demonstrate an understanding of the use of technology to support performance, participation, health and well-being.
Explain the need for and use of compensatory strategies when desired life tasks cannot be performed.
Select and provide direct occupational therapy interventions and procedures, including considerations of current technology in the field, to enhance safety, health and wellness and performance in areas of occupation.
Provide basic training in self-care, self-management, home management, and community and work integration to clients with varying abilities.
Provide compensatory strategies for physical, cognitive, perceptual, neuromuscular, behavioral skills, and sensory functions
Adapt environments (eg. work, home, school, community) and processes, including application of ergonomic principles.
Articulate principles of and demonstrate strategies with assistive technologies and devices including functional mobility aids used to enhance occupational performance.
Provide fabrication, application, fitting, and training in orthotic devices used to enhance occupational performance and training in the use of prosthetic devices
Provide training in techniques to enhance community mobility, including public transportation, community access, and issues related to driver rehabilitation.
Teach compensatory strategies, such as use of technology, adaptations to the environment, and involvement of humans and nonhumans in the completion of tasks.
Describe the safe, effective and ethical application of physical agent modalities as a preparatory measure to improve occupational performance.

OTA 206 - Devel. Disabilities - Treatment and Applications (8)

This course focuses on students learning about the functional implications of various pediatric diagnoses on areas of occupation: self-care, play, education, and social participation while considering sociocultural and ethical issues when working with children and adolescents and their families. These experiences promote essential critical thinking and clinical reasoning abilities in students as they learn to apply theoretical frames of reference in pediatric occupational therapy and develop assessment skills and intervention plans for children and adolescents with various diagnoses. Lab experiences will be part of the class, and allow students to practice specific occupational therapy assessment measures and intervention techniques for infants, children and adolescents.

Prerequisite: All first quarter OTA classes. Crosslisted as: n/a. Offered: Winter.

Outcomes
Demonstrate knowledge and understanding of common developmental disabilities and their potential impact on participation and performance in typical daily activities.
Demonstrate knowledge and understanding of normal and atypical human development throughout the life span (infants, children, adolescents, adults, and elderly persons).
Articulate the importance of using statistics, tests, and measurements during the evaluation process, specifically for assessment of pediatric diagnoses, needs, and outcome measures
Identify specific pediatric OT practice models and their intervention characteristics as necessary for organization and development of evidence-based intervention for pediatric clients.
Demonstrate knowledge of the Occupational Therapy Practice Framework by applying the domain and process to the pediatric population
Identify the role of an OTA when working in a variety of settings and with interprofessional personnel as part of the consultative process in school systems, outpatient clinics and transitional programs to identify occupational needs
Demonstrate knowledge and understanding of AOTA's Occupational Therapy Code of Ethics and Standards of Practice and use them as a guide for ethical decision making in professional interactions, client interventions and employment settings of early intervention, schools, outpatient clinics, inpatient.
Design intervention strategies for remediation and/or compensation for functional deficits affecting occupational performance that are age/developmentally appropriate and give evidence of clinical reasoning

OTA 210 - Physical Disabilities - Treatment and Applications (8)

Trauma, illness, and other conditions that lead to physical dysfunction are examined. Therapy modalities to maximize independence, safety and participation in meaningful occupation are practiced. This course focuses on the further development of the student's skills in clinical reasoning carrying out the treatment plan Trauma, illness, and other conditions that lead to physical dysfunction are examined. Therapy modalities to maximize independence, safety and participation in meaningful occupation are practiced.

Prerequisite: All first and second quarter OTA classes. Crosslisted as: n/a. Offered: Spring.

Outcomes
Administer selected assessments using appropriate procedures and protocols (including standardized formats) and report on results to be communicated to the OT.
Assist with the development of occupation-based intervention plans and strategies to address performance skills and client factors utilizing clinical reasoning and based on the stated needs of the client as well as data gathered during the evaluation process in collaboration with the client and others.
Demonstrate the ability to develop interventions for remediation and compensation for physical, cognitive, perceptual, sensory, and neuromuscular deficits through preparatory and occupation-based methods.
Provide training in techniques to safely enhance mobility, including physical transfers, wheelchair management, community mobility, and participate in addressing issues related to driving.
Apply theories and models of occupational performance, frames of reference, and scientific evidence to inform evidence-based interventions.
Use the teaching–learning process with the client, family, significant others, colleagues, and other health providers to provide clinical training and education at the level of the audience
Demonstrate skills of intraprofessional collaboration with occupational therapists by explaining the roles of OTs and OTAs to develop and carry out therapeutic interventions.
Demonstrate the ability to assess and monitor vital signs to ensure that a client is stable for intervention
Document on interventions provided to include the need and rationale for OT services and knowledge of CPT codes for billing purposes.

OTA 212 - Applied Experience - I - C (1)

Students participate in observations and guided practice opportunities for applying OT principles in traditional and nontraditional settings

Offered: Summer.

Outcomes
Gather and share data for the purpose of screening and evaluation including, but not limited to, specified screening tools, assessments, skilled observations, checklists, histories, consultations with other professionals, and interviews with the client, f
Develop skill and ability in observation, asking questions, effective interpersonal relationships, communication skills, and retrieving client information.
Cultivate professional responsibility in appropriate dress, appropriate behavior, confidentiality of information, and responsibility to client, facility/environment and self.
Develop knowledge and understanding of physical, organizational and therapeutic structure of the environment, the role of occupational therapy in the evaluation and treatment of clients, ethical considerations in the practice of occupational therapy and t
Cultivate therapeutic use of self, as identified by developing empathy, developing an appreciation of sociocultural, socioeconomic and diversity of others, and adjusting feelings and behavior for therapeutic gain.
Provide therapeutic use of self, including one's personality, insights, perceptions, and judgments as part of the therapeutic process in both individual and group interaction.
Apply training strategies in self-care, self-management, home management, and community and work integration.
Apply development, remediation, and compensation for physical, cognitive, perceptual, sensory, neuromuscular, and behavioral skills

OTA 213 - Seminar - Applied Physical Rehabilitation (1)

This course focuses on the applied physical rehabilitation in fieldwork experiences, by articulating the physical components of individual/group function within the context of occupational therapy practice, based on skilled observations. Reflection on the ethical considerations within occupational therapy practice, including use of the AOTA Code of Ethics and Standards of Practice to make informed clinical and employment decision, including strategies for analyzing issues and making decisions to resolve personal and organizational ethical conflicts.

Prerequisite: All first, second and third quarter OTA classes. Crosslisted as: n/a. Offered: Summer.

Outcomes
Articulate care coordination, case management and transition services in traditional and emerging practice environments
Understand and articulate the physical components of individual/group function within the context of occupational therapy practice, based on skilled observations within fieldwork experience
Explain the role and responsibility of the OTA to advocate for changes in service delivery policies, effect changes in the system, recognize opportunities in emerging practice areas, and advocate for opportunities to expand the occupational therapy assistant's role.
Identify issues related to business aspects of practice.
Identify national requirements for credentialing and requirements for licensure and certification consistent with federal and state laws.
Define strategies for effective, competency-based legal and ethical supervision of occupational therapy assistants and non-occupational therapy personnel.
Identify and develop strategies for ongoing professional development to ensure that practice is consistent with current and accepted standards.
Identify liability issues under current models of services provision
Discuss the varied roles of the OTA providing services on a contractual basis

OTA 220 - Clinical Fieldwork Level II - Rotation A (11)

The first of two eight-week off-campus work experiences in a clinical setting under the supervision of a licensed occupational therapist or a certified occupational therapy assistant. This forty-hour per week rotation is to further develop and practice the skills of an entry-level OTA and must be successfully completed before student is eligible for the national certification examination

Offered: Fall.

Outcomes
Develop entry level competencies for the Level II fieldwork by the end of the experience (entry level competence is defined as achieving the minimum passing score or above on the AOTA Level II Fieldwork Performance Evaluation).
Assume full client caseload, as defined by fieldwork site, by end of experience.
Collect, use and appropriately apply assessment data to intervention development and treatment.
Submit correct and complete documentation in a timely manner, according to policies and procedures of fieldwork site.
Be familiar with and utilize treatment/intervention approaches that demonstrate in depth knowledge of the various frames of reference and evidence based interventions in occupational therapy practice.
Establish and maintain an effective relationship with clients, families, co-workers and others involved in the OT intervention process.
Demonstrate an understanding of the use and purpose of "occupation" when assisting in the development of treatment plans, and when working with clients

OTA 221 - Clinical Fieldwork Level II - Seminar A (1)

Discussion and problem-solving of fieldwork experiences and preparation for the national board exam are emphasized

Offered: Fall.

Outcomes
Articulate to consumers, potential employers, colleagues, third-party payers, regulatory boards, policymakers, other audiences, and the general public both the unique nature of occupation as viewed by the profession of occupational therapy and the value o
Articulate the importance of professional research and literature and the continued development of the profession.
Demonstrate a knowledge and understanding of the American Occupational Therapy Association (AOTA) Occupational Therapy Code of Ethics, Core Values and Attitudes of Occupational Therapy Practice, and AOTA Standards of Practice and use them as a guide for e

OTA 222 - Clinical Fieldwork Level II - Rotation B (11)

The second of two eight-week career experiences working in a clinical setting under the supervision of a licensed occupational therapist or a certified occupational therapy assistant. This forty-hour per week rotation is to further develop and practice the skills of an entry-level OTA and must be successfully completed before student is eligible for the national certification examination

Offered: Winter.

Outcomes
Develop entry level competencies for the Level II fieldwork by the end of the experience (entry level competence is defined as achieving the minimum passing score or above on the AOTA Level II Fieldwork Performance Evaluation).
Assume full client caseload, as defined by fieldwork site, by end of experience.
Collect, use and appropriately apply assessment data to intervention development and treatment.
Submit correct and complete documentation in a timely manner, according to policies and procedures of fieldwork site.
Be familiar with and utilize treatment/intervention approaches that demonstrate in depth knowledge of the various frames of reference and evidence based interventions in occupational therapy practice.
Establish and maintain an effective relationship with clients, families, co-workers and others involved in the OT intervention process.
Demonstrate an understanding of the use and purpose of "occupation" when assisting in the development of treatment plans, and when working with clients

OTA 223 - Clinical Fieldwork Level II - Seminar B (1)

Discussion and problem-solving of fieldwork experiences and preparation for the national board exam are emphasized

Offered: Winter.

Outcomes
Articulate to consumers, potential employers, colleagues, third-party payers, regulatory boards, policymakers, other audiences, and the general public both the unique nature of occupation as viewed by the profession of occupational therapy and the value o
Articulate the importance of professional research and literature and the continued development of the profession.
Demonstrate a knowledge and understanding of the American Occupational Therapy Association (AOTA) Occupational Therapy Code of Ethics, Core Values and Attitudes of Occupational Therapy Practice, and AOTA Standards of Practice and use them as a guide for e

OTA 231 - OTA and Special Settings (4)

This course focuses on the settings which require the OT assistant to be an independent self-starter. Occupational therapy practice in a variety of settings are covered.

Prerequisite: All first, second and third quarter OTA classes. Crosslisted as: n/a. Offered: Summer.

Outcomes
Express support for the quality of life, well-being, and occupation of the individual, group, or population to promote physical and mental health and prevention of injury and disease considering the context
Describe the role of the occupational therapy assistant in care coordination, case management, and transition services in traditional and emerging practice environments.
Provide training in the use of prosthetic devices.
Recognize and communicate the need to refer to specialists (both internal and external to the profession) for consultation and intervention.
Identify and explain the need for supervisory roles, responsibilities, and collaborative professional relationships between the occupational therapist and the occupational therapy assistant, particularly in specialized settings.
Contribute towards the evaluation process of client occupational performance through screenings and assessment tools
Demonstrate knowledge of telehealth technology and how it is utilized in providing occupational therapy services

OTA 232 - Professional Issues for the OTA (4)

Preparation for fieldwork, certification and employment of the OTA, as well as, workplace issues and job-related responsibilities of OTA are covered. The OTA as a manager, contractor, private practitioner and advocate of occupational therapy services are presented.

Prerequisite: All first, second and third quarter OTA classes OTA 112 Therapeutic Activities I 4 OTA 206 Developmental Disabilities 8 OTA 205 Adaptive Technologies 4 OTA 113 Therapeutic Activities II 4. Crosslisted as: n/a. Offered: Summer.

Outcomes
Identify the role and responsibility of the practitioner to address changes in service delivery policies, to effect changes in the system, and to recognize opportunities in emerging practice areas.
Describe the role of the occupational therapy assistant in care coordination, case management, and transition services in traditional and emerging practice environments.
Identify strategies for effective, competency-based legal and ethical supervision of non–professional personnel.
Discuss strategies for ongoing professional development to ensure that practice is consistent with current and accepted standards.
Demonstrate the ability to participate in the development, marketing, and management of service delivery options
Determine the need for continued or modified intervention through monitoring, reassessment and collaboration.
Identify and communicate the need to develop community and primary care programs to support occupational performance
Explain how scholarly activities and literature contribute to the development of the profession

PHYS-Physics, Natural Sciences

PHYS& 114 - Introductory Physics I (Algebra based Physics) (5)

Students in this course study the physics of classical systems in terms of Newton's Law of Motion. Topics include motion in on-an multiple dimensions, kinetic energy, momentum, conservation properties of simple systems, rotational dynamics, and friction. The course is designed for students with little to no background in physics. Laboratory activities will be conducted through both online simulations and experiments to be conducted by students.

Prerequisite: MATH 98 or AMATH 170.

PHYS& 221 - Engineering Physics I w/LAB (5)

Physics for people with an interest in becoming scientists or engineers. Topics covered will be kinematics, dynamics, momentum, and energy. Four hours of lecture and two hours of lab weekly.

Distribution: Gen-Ed. Prerequisite: ENGL&101, MATH&151.

PHYS& 222 - Engineering Physics II w/LAB (5)

Topics covered will include electromagnetism, oscillations, and gravitation. Four hours of lecture and two hours of lab weekly.

Distribution: Gen-Ed. Prerequisite: PHYS&221, ENGL&101, MATH&152.

PHYS& 223 - Engineering Physics III w/LAB (5)

Topics covered will include waves, fluids, optics, and modern physics.

Distribution: Gen-Ed. Prerequisite: PHYS&222, ENGL&101, MATH&152.

PLMB Plumber Apprenticeship SAPHP

PLMB 111 - Plumber Year 1 Week 1 (5)

PLMB 112 - Plumber Year 1 Week 2 (5)

PLMB 113 - Plumber Year 1 Week 3 (5)

PLMB 114 - Plumber Year 1 Week 4 (5)

PLMB 115 - Plumber Year 1 Week 5 (5)

PLMB 121 - Plumber Year 2 Week 1 (5)

PLMB 122 - Plumber Year 2 Week 2 (5)

PLMB 123 - Plumber Year 2 Week 3 (5)

PLMB 124 - Plumber Year 2 Week 4 (5)

PLMB 125 - Plumber Year 2 Week 5 (5)

PLMB 131 - Plumber Year 3 Week 1 (5)

PLMB 132 - Plumber Year 3 Week 2 (5)

PLMB 133 - Plumber Year 3 Week 3 (5)

PLMB 134 - Plumber Year 3 Week 4 (5)

PLMB 135 - Plumber Year 3 Week 5 (5)

PLMB 141 - Plumber Year 4 Week 1 (5)

PLMB 142 - Plumber Year 4 Week 2 (5)

PLMB 143 - Plumber Year 4 Week 3 (5)

PLMB 144 - Plumber Year 4 Week 4 (5)

PLMB 145 - Plumber Year 4 Week 5 (5)

PLMB 150 - Plumber Year 5 (5)

PNUR-Practical Nurse

PNUR 151 - Foundations of Nursing Practice (5)

This course provides the framework and principles of the foundation of nursing practice. This course will include information about topics and theories related to nursing judgement model data collection and the legal and ethical principles of nursing. The scope of practice and the role of the practical nurse in health care, in healthcare delivery

systems and as a part of a multidisciplinary team is also a focus of this course. Students will learn principles related to assessment and data collection and the provision of culturally sensitive care to diverse populations across the lifespan.

Prerequisite: Admission into the nursing program following successful completion of all required prerequisites. Crosslisted as: This is offered in our full time and our part time program.

Outcomes
Explain the components of the clinical judgement model as it applies to nursing practice.
Describe the significance of client teaching in Health Promotion for a patient and the communities they live across the lifespan.
Utilize clinical judgement to describe the principles of inflammation, infection control, isolation, nutrition, elimination and oxygenation in clients across the lifespan as it relates to basic nursing skills.
Demonstrate the role of a nurse in maintaining and promoting the safety and wellbeing of patients using assessment, critical thinking skills, pain management tools, in a variety of health care settings.
Identify and discuss ethical and legal considerations in caring for culturally diverse community across the lifespan.
Discuss the variety of health care models and the LPN's role in delivering evidence-based, culturally appropriate care to clients across the lifespan.
Define and describe the role of informatics and technology in health care setting as it applies to communication and documentation.

PNUR 152 - Foundations of Nursing Practice Lab I (2)

In this course, students will learn basic nursing skills related to the foundations of nursing course, including assessment, data collection, safety and isolation, safe medication administration, pain and comfort. Students will learn to apply ethical and legal principles to the care of diverse populations of patients across the lifespan.

Prerequisite: All required pre-requisites for entry into the PN program. Crosslisted as: This course will be offered for both the full time and part time pathways.

Outcomes
Demonstrate clinical judgement using basic nursing skills such as data collection, wound care, medication administration, the principles of nutrition, oxygenation, elimination and hemodynamics.
Apply principles of asepsis and isolation when providing care to diverse patients across the lifespan.
Effectively communicate and document in order to provide consistent, equitable and culturally sensitive care to patients across the lifespan.
Perform basic data collection as it applies to assessments in a variety of settings and across the lifespan.
Identify legal and ethical principles and apply them to nursing care, documentation and communication.

PNUR 153 - Mental Health in Nursing Practice (3)

This course introduces and explores the role of the practical nurse in caring for patients and their families affected by mental health disorders across the lifespan. Students will learn about the importance of therapeutic relationships and safe environments. The psychopathology and treatment modalities utilized to treat mental illness will also be discussed and applied. Students will engage in clinical judgement, critical thinking skills and the application of the nursing process through didactic lecture and active learning.

Prerequisite: All required program pre-requisites have been completed. Crosslisted as: This course will be offered in both the full time and the part time program.

Outcomes
Describe an understanding of how stress, trauma, adaptation and coping are related to mental health and mental illness.
Demonstrate clinical judgement and an understanding of therapies used to manage mental illness including pharmacological and non-pharmacological treatments.
Use critical thinking clinical judgement to demonstrate an understanding of action, indication, side effects and contraindications of different medications used to manage mental illness.
Utilize clinical judgment to describe components necessary to develop a therapeutic relationship and therapeutic communication with a client.
Discuss the importance of the mental illness classification system and its application to providing evidence-based care.

PNUR 154 - Medical Surgical Nursing I (3)

In this course students will learn about medical and surgical conditions of the musculoskeletal and renal system including fluid and electrolyte disorders. Students will

integrate the knowledge of basic sciences to the understanding of disease processes, clinical manifestations, diagnostic tests and pharmacological and nonpharmacological treatments of the discussed disorders.

Prerequisite: Entrance requirements for the nursing program pre-requisites have been met. Crosslisted as: This course will be offered in the full time and part time programs.

Outcomes
Using critical thinking and clinical judgement, describe the pathophysiology/ physiology, etiology, normal and abnormal findings while caring for a client with variety of medical and surgical conditions.
Demonstrate an understanding of the PN role in creating a healing environment for patients receiving care in a variety of health care settings and across the lifespan.
Describe principles of safety, patient-centered care and health promotion while caring for patients with medical surgical disorders in various clinical settings.
Describe the effects of culture, socioeconomics, race and religion on health across the lifespan.
Describe ethical and legal considerations when caring for clients with varies medical and surgical conditions across the lifespan.

PNUR 155 - Nursing Simulation I (1)

In this course students will learn to apply topics and skills learned in didactic classes as well as nursing laboratory to provide culturally sensitive care in variety of clinical situations. Students will work with high fidelity simulators to begin applying critical thinking skills and developing nursing clinical judgement.

Prerequisite: All prerequisite course required to enter the nursing program. Crosslisted as: This course will be offered in both full time and part time PN options.

Outcomes
Using critical thinking and clinical judgement, identify priorities of care for patients with variety of medical and surgical conditions.
Effectively communicate and collaborate with health care team members to achieve the best outcomes for a variety of patients
Demonstrate accuracy and competency with dosage calculation as it applies to nursing practice and medication administration.
Demonstrate an ability to safely perform basic nursing skills with consideration for cultural, socioeconomic, gender, racial, ethnic, and religious diversity when caring for patients
Demonstrate proficiency with EMR and written communication.

PNUR 156 - Clinical I (1)

Within a variety of clinical settings, students begin to utilize the nursing process to provide comprehensive care to a diverse population of clients. Clinical experience is integrated with theory under the guidance of faculty and enables the student to implement skills learned in lab and apply theory learned in the classroom.

Prerequisite: All pre-requisite requirements for entrance into the nursing program. Crosslisted as: This course will be offered in both the full time and part time program options.

Outcomes
Utilizing critical thinking and clinical judgement, demonstrate an ability to provide basic care to patients with diverse medical and psycho-social needs.
Demonstrate an understanding of basic physiology and pathophysiology and be able to apply that knowledge to data collection.
Demonstrate an ability to effectively communicate with patients from diverse cultural and social backgrounds.
Utilizing legal and ethical principles, document care provided to the patients and maintain confidentiality.
Demonstrate safe, patient-centered care in a variety of clinical settings.
Safely perform nursing skills in the clinical setting, including the administration of injections.
Identify members of multidisciplinary team and their roles in providing patient centered care.
Identify and apply basic scientific principles to patient care.

PNUR 157 - Foundations of Pharmacology (2)

This course focuses on the practical nurse’s role in medication administration to people of all ages. There is a

strong emphasis on dosage calculation and drug classifications. Basic concepts of pathophysiology and nursing implications are presented for medications of the various body systems. Utilizing the nursing process and clinical reasoning to provide safe medication administration with a focus on preventing medication errors is also included.

Prerequisite: Successful completion of full time or part time previous quarter courses. Crosslisted as: This course will be offered in both the full time and part time program options.

Outcomes
Utilizing critical thinking and clinical judgement, describe the principles of pharmacology and its application in managing common medical disorders.
Describe action, contraindications, and side effects of common medication classifications utilized to treat common medical disorders across the lifespan.
Utilizing clinical judgement, describe the role of patient teaching as it relates to medication administration.
Describe the PN role in safe medication practices and the PN's responsibilities as it relates to prevention and reporting of medication errors.

PNUR 158 - Medical Surgical Nursing II (5)

In this course, students will learn various topics related to medical and surgical conditions of the cardio-pulmonary and endocrine systems. Students will integrate the knowledge of basic sciences to the understanding of disease processes, clinical manifestations, diagnostic tests and pharmacological and nonpharmacological treatments of the discussed disorders.

Prerequisite: Successful completion of all courses in First Quarter (fall) of Full time PN Program and all courses in first and second quarter (summer and fall) of Part time PN Program. Crosslisted as: This course will be offered in both full time and part time program.

Outcomes
Using critical thinking skills and clinical judgement, describe the physiology, pathophysiology etiology, normal and abnormal findings while caring for clients with a variety of medical and surgical conditions.
Utilizing clinical judgement, describe the diagnostic tools, symptoms and signs of common medical and surgical disorders.
Demonstrate an understanding of the PN role in creating a healing environment for patients receiving care in a variety of health care settings.
Describe principles of safety, patient-centered care, health promotion while caring for patients with medical surgical disorders in a variety of clinical settings.
Describe the effects of culture, socioeconomics, race and religion on health across the lifespan.
Describe ethical and legal considerations when caring for clients with various medical and surgical conditions across the lifespan.
Demonstrate an ability to contribute to the plan of care for patients with medical and surgical disorders in a variety of health care settings.

PNUR 161 - Maternal Health and Care of Children (3)

In this class students will learn the role of the practical nurse in meeting the physiological, psychosocial, cultural, and developmental needs of the maternal, child and adolescent client. Students will engage in clinical judgement and critical thinking skills through didactic lecture and active learning.

Prerequisite: Passing grades in courses from previous quarter of nursing courses. Crosslisted as: Offered in both part time and full time PN options.

Outcomes
Utilizing the critical thinking and clinical judgement, examine and identify the stages of growth and development from infancy to adolescence.
Using critical thinking and clinical judgement, describe the pathophysiology/ physiology, etiology, normal and abnormal findings while caring for a pediatric client with a variety of medical and surgical conditions.
Demonstrate an understanding of the PN role in creating a healing environment for maternal, newborn and pediatric patients receiving care in a variety of health care settings.
Describe principles of safety, patient-centered care, injury prevention, health promotion while caring for maternal, newborn and pediatric patients with medical surgical disorders in a variety of clinical settings.
Applying scientific methods, identify the role of nutrition, safety, physiological and psychological integrity in maternal, newborn and pediatric patients.
Identify pediatric developmental theories, milestones, growth and development processes and how they relate to patient centered care.
Using clinical judgement, identify communication strategies appropriate for pediatric patients.
Correlate the impact of economic, social, cultural, spiritual, and demographic forces to the role of the practical nurse in the delivery of health care during the various stages of human life span.

PNUR 162 - Nursing Simulation II (1)

In this course students will learn to apply topics and skills learned in didactic classes as well as nursing laboratory to provide culturally sensitive care in variety of clinical situations. Students will work with high fidelity simulators to begin applying nursing process skills and developing nursing clinical judgement skills.

Prerequisite: Successful completion of first quarter full time courses or first and second quarter part time courses. Crosslisted as: This course will be offered in both the full time and part time program options.

Outcomes
Utilizing clinical judgement, develop priorities of care for diverse patients.
Using scientific methods, implement basic nursing skills to provide safe and effective care.
Appraise the impact of legal and ethical principles on health care and nursing practice.
Effectively communicate and collaborate with health care team members to achieve the best outcomes for a variety of patients.
Demonstrate accuracy and competency with dosage calculation as it applies to nursing practice and medication administration.
Develop proficiency with EMR and written communication and documentation.
Apply the principles of safety, patient-centered care, health promotion and collaboration while caring for patients in a variety of clinical settings.
Develop a teaching plan for a client with a variety of conditions across the lifespan.

PNUR 164 - Medical Surgical Nursing III (6)

In this course students will learn about medical and surgical conditions related to the neurological and gastrointestinal systems; immunology, hematology and cancer. Students will integrate the knowledge of basic sciences to the understanding of disease processes, clinical manifestations, diagnostic tests and pharmacological and nonpharmacological treatments of the discussed disorders.

Prerequisite: Successful completion of first two quarters of full time program courses and first 4 quarters of part time program courses. Crosslisted as: This course will be offered in both the full time and part time tracks.

Outcomes
Using clinical judgement, apply the understanding of pathophysiology/physiology to the care of clients with a variety of medical and surgical conditions.
Using an understanding of the PN scope of practice and current health care trends, create a healing environment for patients receiving care in a variety of health care settings
Utilizing the principles of safety, patient-centered care and disease prevention, develop a health promotion plan for patients with medical surgical disorders in a variety of clinical settings.
Correlate the effects of culture, socioeconomics, race and religion on health and disease prevention across the lifespan.

PNUR 167 - Nursing Simulation III (1)

In this course students will learn to apply topics and skills learned in didactic classes as well as clinical practice to

provide culturally sensitive care in a variety of clinical situations. Students will work with high fidelity simulators to begin applying nursing process skills and developing nursing clinical judgement skills.

Prerequisite: Successful completion of the first two quarters of full time or first three quarters of part time program courses. Crosslisted as: This course will be offered in both the full time and part time program tracks.

Outcomes
Utilizing the clinical judgement model, collaborate to develop priorities of care for diverse patients.
Applying scientific methods and clinical judgement, implement advanced practical nursing skills to provide safe and effective care.
Appraise the impact of legal and ethical principles on health care and nursing practice.
Effectively communicate and collaborate with health care team members to achieve the best outcomes for a variety of patients.
Demonstrate accuracy and competency with dosage calculation as it applies to nursing practice and medication administration.
Author professional written communication as necessary and proficiently use the EMR for documentation.
Apply the principles of safety, patient-centered care, health promotion and collaboration while caring for patients in a variety of clinical settings.
Design and deliver patient education plans for clients with a variety of conditions across the lifespan.

PNUR 169 - Clinical II (2)

Within a variety of clinical settings students will provide comprehensive patient centered care to a diverse population of clients. Clinical experience is integrated with theory under the guidance of faculty and enables the student to implement skills learned in lab and apply theory learned in the classroom.

Prerequisite: Successful completion of first quarter of full time program courses and first three quarters of part time program . Crosslisted as: N/A.

Outcomes
Deliver culturally sensitive, quality nursing care to clients from diverse racial, gender, socio-economic, social and religious backgrounds.
Apply the principles of safety, patient-centered care, health promotion and collaboration while caring for patients in various clinical settings.
Demonstrate an ability to accurately and effectively communicate with clients, staff and classmates.
Document care while maintaining principles of HIPAA.
Demonstrate an ability to safely perform basic nursing skills including the administration of medications.
Able to identify and apply scientific principles to patient care.

PNUR 170 - Foundations of Nursing Lab II (2)

In this course students will continue to learn nursing skills such as NasoGastric tube placement and care, specimen collection, IV care and removal, written and verbal communication Students will continue to practice ethical and legal principles to care for a diverse population of patients across the lifespan.

Prerequisite: Successful completion of first quarter courses for full time or part time program. Crosslisted as: This course will be offered in both the full time and part time programs.

Outcomes
Demonstrate and apply the principles of sterility, asepsis, and infection control as it applies to wound care and isolation precautions.
Demonstrate an understanding and competence in performing skills learned and practiced in Nursing Lab.
Demonstrate accuracy and competency with dosage calculation as it applies to nursing practice.
Using critical thinking and nursing judgement, identify principles of mobility and ergonomics to promote safety and decrease the risk of injury.
Demonstrate competence in utilizing the EMR to research, understand, provide and communicate care to patients in a variety of health care settings.
Demonstrate an ability to deliver quality nursing care to clients from diverse racial, gender, socio-economic, social and religious backgrounds.

PNUR 171 - Clinical III (4)

Within a variety of clinical settings students will provide comprehensive, patient centered care to a diverse population of clients. Clinical experience is integrated with theory under the guidance of faculty and enables the student to implement skills learned in lab and apply theory learned in the classroom.

Prerequisite: Successful completion of courses from first 2 quarters of full time program or first 3 of part time program. Crosslisted as: This course will be offered in both the full time and part time program.

Outcomes
Develop and deliver culturally sensitive, safe, quality nursing care to diverse clients.
Demonstrate an ability to effectively communicate with members of the healthcare team.
Formulate an understanding of pathophysiology and disease processes and investigate how they relate to medications, treatments and data collection.
Collaborate with health care team and contribute to the plan of care for variety of patients in the clinical setting.
Develop and health promotion plan and educate clients regarding medication and health conditions in a variety of settings across the lifespan.
Develop proficiency with EMR and written communication and documentation.

PNUR 172 - Transition to Professional Nursing Practice (4)

Students will focus on preparing for professional practice by learning the licensure process in Washington State including preparation for NCLEX as well as writing resumes and interviewing for a job. This course will provide students with an opportunity to discuss and apply the legal and ethical framework of nursing practice. Students will discuss nurse's role as a leader and review delegation process.

Prerequisite: Successful completion of the first two quarters of the full time program courses and the first 5 quarters of the part time program courses. Crosslisted as: This course will be offered for both the part time and full time options in PN program.

Outcomes
Describe the Nurse Practice Act and its relation to the LPN scope of practice and the role of the LPN in the health care environment.
Develop a plan for maintaining licensure through professional development activities and membership in professional organizations.
Discuss criminal vs civil law, competence, malpractice and whistle blowing and how they apply to the LPN in the health care environment and practice.
Describe the requirements for obtaining an LPN license in the state of Washington and develop an NCLEX success plan.
Describe principles of delegation and professional communication and collaboration in the variety of health care settings.

PNURS-Phlebotomy

PNURS 292 - Basic Phlebotomy (3)

Students learn to draw and process blood for analysis.

Offered: Fall, Winter, Spring, Summer.

Outcomes
Students learn to draw and process blood specimens for analysis.
Provide for the specific needs of patients.
Provide excellent customer care.

PNURS 293 - Advanced Phlebotomy (7)

Students learn how to take patient vital signs, perform EKGs and participate in 120 hours of externship

Prerequisite: PNUR 292 Basic Phlebotomy. Offered: Fall, Winter, Spring, Summer.

Outcomes
Take vital signs.
Perform EKGs.
Participate in 120 hours of externship.

POLS-HumanitiesSocial SciencesOther

POLS& 101 - Introduction to Political Science (5)

This course is an introduction to American government

and politics. Students will study the United States Constitution, governmental institutions, the political system, and the regulatory processes embedded within the document. The course format is lecture/discussion.

Distribution: Gen-Ed. Prerequisite: ENGL091.

POW-Motorcycle and Marine Technology

POW 101 - Introduction to Power Sports (3)

This course provides students with training in workplace human relations, communications, shop safety environmental awareness, tools and equipment, measuring, fasteners, and mechanical and mathematical principles required within the occupation.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate an understanding of career opportunities in the various power sports and equipment fields
Demonstrate an understanding of salary ranges for entry level employees in the various power sports and equipment fields
Perform a job shadow or job interview for possible employment in a power sports and/or equipment field.

POW 102 - Power Sports Maintenance (5)

This course provides students with training in perform maintenance for a variety of Power Sports vehicles. The skills covered will include checking fluids, adjustments and determining serviceability life of the vehicle

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate knowledge of basic hand tools used in Power Sports mechanics
Perform fluid changing on a variety of equipment including oil, coolant and transmission.
Perform replacement of filters including oil, air and fuel filters.
Perform tune up maintenance including fuel system service, carburetor service, spark plug inspection and replacement.

POW 105 - Brakes Service and Repair (5)

This course provides training for the student to learn to service and repair disc and drum brake systems in the Power Sports world. Students will learn a variety of systems and will learn how to make a decision on serviceability of wear items and how to make the proper repair to the brake system. This course provides the theory and service procedures for ABS based systems found on Power Sports vehicles.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate knowledge of and perform a Used Vehicle or Equipment Inspection.
Inspect, Service and replace disc brake components
Inspect, Service and replace drum brake components

POW 106 - Tire Service and Repair (5)

This course will provide training in servicing and repairing tires in the power sports industry. This course will train students to determine the serviceability of the tire, determine and make the proper repair to a tire, remove and replace tires and to balance tires. This course will provide students with training on identifying and correcting problems with wheels and wheel bearings.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Remove, replace and balance a tire and wheel assembly
Remove and Replace a spoke rim tire assembly
Inspect and true a spoke rim assembly

POW 120 - Engines - Failure Analysis (5)

Students are introduced to the theory of internal combustion engines and learn how to diagnosis problematic engines and analyze failed engines

Distribution: Career Training. Offered: Spring.

Outcomes
perform compression tests
diagnose engine leaks
make proper valve adjustments

POW 121 - Engine Repair Methods (5)

Students learn to correctly disassemble, inspect, and machine engines to return to service. Special emphasis is

placed upon the utilization of service manuals and manufacturers' guidelines

Distribution: Career Training. Offered: Spring.

Outcomes
remove and install an engine properly.
make proper measurements of internal engine parts.
re-assemble an engine to industry standards

POW 122 - Engine Installation Methods (5)

This course will train students in the methods of reassembling internal combustion engines. Students will be taught industry standard methods of lubricating, sealing, torqueing internal combustion engines. Students will be taught proper methods of engine break in once engines are put back into service.

Distribution: Career Training. Offered: Spring.

Outcomes
Assemble and lubricate internal combustion engines to industry standard.
Seal and torque internal combustion engines to industry standard.

POW 123 - Carburetor Service and Repair (5)

This course provides training in identifying, cleaning, servicing and tuning carburetors. Specific attention will be paid in this class to classifying carburetor driven faults and to properly balancing and tuning carburetors.

Distribution: Career Training. Offered: Summer.

Outcomes
service and repair fuel supply systems
service and repair carburetors

POW 140 - Fundamentals of Electricity (5)

This course is an introduction to electrical systems. Students receive electrical and electronic theory, learn to use electrical test equipment, and provide basic electrical systems inspections and service. Students will receive training in the theory and application of the Diagnostic Electrical Rules

Distribution: Career Training. Offered: Winter.

Outcomes
test electrical circuits and make proper determinations by applying the Electrical Rules
trace current paths of a circuit using an electrical Wiring Diagram

POW 141 - Electrical Charging and Starting Systems (5)

Students are introduced to the charging and starting systems encountered in various types of motorized vehicles. Special emphasis is placed upon the utilization of service manuals and electrical schematics. Students will be exposed to a variety of troubleshooting techniques including 6 step troubleshooting in both charging and starting systems.

Distribution: Career Training. Offered: Winter.

Outcomes
identify and service a variety of charging systems
identify and service a variety of starter systems

POW 142 - Ignition Systems (5)

Students receive training and practice in servicing and repairing the electrical ignition systems of various types of motorized vehicles. This includes problem identification, diagnostic testing, repair, and rising and collapsing field ignition systems. This course will cover Magneto, CDI and Transistorized ignition systems found on a variety of Power Sports vehicles.

Distribution: Career Training. Offered: Winter.

Outcomes
identify and service a variety of ignition systems
service and repair electronic ignition systems

POW 150 - Transmission Service and Repair (5)

Students are introduced to transmission theory, service and repair. A wide variety of applications are presented and studied. The students will use practical application to learn to service transmissions.

Distribution: Career Training. Offered: Fall.

POW 151 - Drive Train Service and Repair (5)

Students receive training in the servicing and repairing of the various modes of transmitting engine power. This includes clutches, gear drive, belt/chain drive systems, and manual starters. Students will receive training in final drive ratios including bevel drive gear sets and differentials.

Distribution: Career Training. Offered: Fall.

Outcomes
service and repair clutch related systems and components.
service and repair transmissions.

POW 154 - Computerized System Basics (3)

Students receive training computer logic, power and ground circuits. Students will receive training in how a microprocessor works, how scan tools communicate with vehicles and diagnostic strategies for testing computer power and ground circuits.

Distribution: Career Training. Offered: Summer.

Outcomes
Test for computer power and ground
Test for the 5 volt Voltage Control circuit
Trace current and power flow on a wiring diagram

POW 155 - Electronic Fuel Injection (5)

This course will cover in depth study of electronic fuel injection in the power sports industry. Students will study sensor operation and diagnosis; fuel delivery and injector operation and diagnosis; and oxygen sensor operation and diagnosis.

Distribution: Career Training. Offered: Summer.

Outcomes
Service and repair fuelinjectors
Retrieve codes, perform active tests and manipulate a scan tool.
Diagnose sensor related failures.
Perform fuel pressure tests.

POW 156 - Exhaust Gas Analysis (5)

Students are introduced to exhaust gas and combustion theory and analysis. Students will be exposed to exhaust gases, their function in combustion and fault diagnosis. Students will receive training in use of an Exhaust Gas Analyzer for tuning and troubleshooting engine run ability issues on Power Sports vehicles

Distribution: Career Training. Offered: 2.

Outcomes
Classify misfires for fuel, ignition or mechanical.
Record and interpret an exhaust gas analyzer.

POW 161 - Chassis Service (5)

Service/technician students receive shop experience in maintaining or repairing frame and suspension systems including steering systems, wheels/tire assemblies, and suspension systems.

Distribution: Career Training. Offered: Fall.

Outcomes
service steering bearings and make proper adjustments
service fork type suspensions and make proper adjustments
service shock absorbers and make proper adjustments.

POW 162 - Advanced Projects

This course offers students an opportunity to work on a lab-based project instead of a work-based learning component. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
service a variety of customer concerns.
use all inspection sheets and fill out all proper paperwork.
communicate with the customers during vehicle intake, parts ordering and vehicle delivery.
perform a live demonstration of vehicle performance to the customer at vehicle delivery.

POW 296 - Work Based Learning

Work Based Learning (WBL) allows the students to participate in on-the-job training in the field in which they are studying. They apply the skills they have learned in the classroom to specific areas of employment in a variety of business/industries. The learning activity is based on the written agreement with the participating training provider.

Distribution: Career Training. Offered: Winter, Summer.

PPT Plastic Process Technology Apprenticeship AJAC

PPT 101 - Math for Industrial Maintenance (5)

Geometry, and Trigonometry to help students apply formulas and common technical application problems. Basic math skills will be reviewed including decimals, fractions and conversions between them. This course also includes the use and application of formulas required in industry. Students will learn properties of angles and common geometric shapes and relevant trigonometric functions, and they will be introduced to graphs and statistics.

Offered: Winter, Spring, Summer, Fall.

PPT 102 - Technical Drawings (5)

In this course, apprentices will learn to read and interpret technical drawings and schematics, as well as practice basic drafting. Apprentices will begin by learning to interpret the basic elements of a drawing, line types, principles of orthographic projection, and normal, sectional, and auxiliary views. Apprentices will learn to interpret dimensioning and tolerancing on prints, including geometric dimensioning and tolerancing. Drawings studied in this class will come both from the text and from industry, and will include machining, fabrication, assemblies, and fluid power systems. Apprentices will also learn about various types of fasteners, cams, and gears. Hands-on activities in this course include creating various types of shop sketches, and applying print-reading knowledge to inspect a part.

Offered: Winter, Spring, Summer, Fall.

PPT 103 - Inspection (5)

Delivering quality efficiently is the key to strong manufacturing. To be competitive, today's Plastic Process Technician must be able to effectively inspect parts in the shop with a variety of methods and instruments. This course focuses on the science and skill of measuring and inspection. They will learn to verify dimensions of size and position, surface finish, material hardness, threads, and other important elements. Apprentices will have hands-on practice using a variety of measuring instruments such as micrometers, calipers, precision gages and coordinate measuring machines (CMMs). Apprentices will also learn techniques for inspection planning, first article inspection, in process inspection, and statistical process control. Instructors will reinforce the theory and technique of accuracy, precision and repeatability to help students develop an uncompromising attitude towards good inspection technique.

Offered: Winter, Spring, Summer, Fall.

PPT 121 - Precision Machining (5)

The apprentices will explore theory, application, and hands-on experience with precision machining practices for plastic processing. Apprentices will explore topics related to manual machine tool setup and operation, for saws, drill presses, engine lathes, milling machines, and grinders. Apprentices will also gain bench work experience, including hole-making and part finishing operation using hand tools. An emphasis will be placed on preventative maintenance and safety in the shop while operating machines and handling tools and materials. Apprentices will plan, machine, and inspect two projects: a C-clamp and a plumb bob.

Offered: Winter, Spring, Summer, Fall.

PPT 122 - Geometric Dimensioning and Tolerancing and Precision (5)

This course introduces apprentice machinists to principles of geometric dimensioning and tolerancing (GD&T) governed by the ASME Y14.5 standard. Apprentices will learn to identify and interpret each of the GD&T controls for form, profile, orientation, location, and runout. Apprentices will learn to interpret symbols, datums, basic dimensions, material condition modifiers, and other GD&T concepts that are essential for the machinist. Hands-on activities will emphasize interpreting GD&T found on engineering drawings, as well as the setup, measuring, and inspection of a part or features with geometric tolerancing.

Offered: Winter, Spring, Summer, Fall.

PPT 123 - Electrical Systems (5)

In this course, apprentices will learn about industrial electrical theory, components, and equipment necessary to troubleshoot electrical problems. Apprentices will begin by

learning to interpret electrical symbols, diagrams, and terminology. They will explore topics such as electric power, circuits, wiring, and transformers. This course will also cover AC theory, motors, control circuits, industrial electronics, line diagrams, circuit logic and programming, as well troubleshooting techniques. Apprentices will gain hands-on experience with electrical components, circuits, and electrical test equipment used in industry.

Offered: Winter, Spring, Summer, Fall.

PPT 201 - Mechanical Systems (5)

The apprentices will learn to maintain all of the elements of a mechanical system. Apprentices will begin by exploring mechanical fundamentals such energy, mechanical forces, and simple machines. Apprentices will learn to troubleshoot, assemble, and maintain systems and components such as couplings, bearings, belt and chain drives, gear drives, seals and packing, and clutches and brakes. Apprentices will also learn principles of lubrication and machine vibration. Hands-on activities will involve inspecting and making repair recommendations for mechanical systems found in industry such as gearboxes, worm drives, standard transmissions, and differential drives. Apprentices will also practice coupling alignment skills using a simulation station.

Offered: Winter, Spring, Summer, Fall.

PPT 202 - Fluid Power Systems (5)

This course explores the fundamental theories and practical application of fluid power systems with a focus on system setup and maintenance. Apprentices will explore the fundamentals of hydraulic and pneumatic systems, including operation, maintenance, and safety, as well as interpreting related standards, symbols, and diagrams. Components of fluid power systems will be covered in detail, such as compressors, motors, piping and hoses, pumps, actuators, and valves. Apprentices will practice their skills in the troubleshooting and repair of hydraulic and pneumatic systems with simulator software and hands-on activities.

Offered: Winter, Spring, Summer, Fall.

PPT 203 - Maintenance Systems (5)

The apprentices will explore intermediate-level theory, application, and hands-on experience with machining practices for plastics processing. Apprentices will learn about CNC machines, drives, positioning systems, feedback methods, and sensors, as well as maintenance and safety topics. Apprentices will learn advanced techniques for operating lathes, milling machines, and other machine tools in order to create their culminating project, a gear puller, which they can use maintenance work. Apprentices will explore additional machining topics important for industrial maintenance, such as key seats and keyways, restoring and removing threads and bolts, and fastening and assembly techniques.

Offered: Winter, Spring, Summer, Fall.

REFR HVAC-Refrigeration Mechanic Apprenticeship SAPHP

REFR 111 - HVACR Year 1 Week 1 (5)

Apprentices will be introduced to the scientific concepts of temperature, pressure, heat and energy as they relate to mechanical systems. They will apply electrical concepts and mathematical formulas to measure to check voltage, amperage and power with multi-meter devices. They will also be introduced to regulations and processes to ensure personal safety when working with electricity. They will develop brazing skills by following the brazing progression sheet. They will also demonstrate safe use of equipment commonly found in HVACR service vehicles or on rooftops.

Offered: Winter.

REFR 112 - HVACR Year 1 Week 2 (5)

Apprentices will follow EPA 608 Universal guidelines to handle refrigerant, and will earn the related EPA certification. They will complete electrical calculations for series and parallel circuits, and demonstrate mathematical competency to size duct materials, control air flow, and properly install equipment. They will continue practicing brazing skills by completing a single and couple joint, flare and swage brazes with dissimiliar metals.

Offered: Spring.

REFR 113 - HVACR Year 1 Week 3 (5)

Apprentices will relate the basic cycle of refrigeration to

various HVACR equipment. They will plot enthalpy charts to troubleshoot proper operation of equipment. They will be introduced to the electrical concepts of induction, impedance and capacitance. They will interpret electrical symbols in schematics to draw basic wiring diagrams, including installation and pictorial views. They will continue trades-related math by demonstration competency in measuring using calculators, formulas, and tape measures. They will continue building brazing skills by following the braze progression sheet, and completing a T-square. They will demonstrate consistent and safe application of OSHA and WAC rigging rules when working on rooftops. Finally, they will be introduced to basic oxy-fuel welding.

Offered: Summer.

REFR 114 - HVACR Year 1 Week 4 (5)

Apprentices will use the Pythagorean Theorem to solve for angles and complete basic piping offsets. They will draw increasingly complex wiring diagrams, including split phase and shaded pole induction motors. They will apply air and water flow calculations to understand heat transfer, and load formulas to solve for BTUH. They will further apply these calculations to calculate specific areas and data in a built environment. They will plot air conditioning and refrigeration system using psychometric charts. They will continue brazing and oxy-fuel welding following progression charts. Finally, they will identify hazards to setting equipment.

Offered: Fall.

REFR 115 - HVACR Year 1 Week 5 (5)

Apprentices will utilize effective, professional means of communication, verbally and in writing, with internal and external customers. They will learn how to properly document field work using a variety of common contractor forms. They will demonstrate cumulative competency from content covered in weeks 1-4 in brazing, welding, math, electrical and science. Finally, they will demonstrate the ability to safely operate various equipment, including forklifts, scissor lifts, Reach Alls and JLGs.

Offered: Fall.

REFR 121 - HVACR Year 2 Week 1 (5)

Apprentices will review and apply refrigeration and electrical theories to calculate pressure and electricity in HVACR equipment and devices. They will continue diagramming refrigeration systems. They will be introduced to light commercial refrigeration systems found in restaurants and stores, and review the types of package units, including how to interpret blueprints and general maintenance. Additionally, they will practice brazing repairs commonly made for light commercial equipment. They will begin a year-long rigging course by reviewing Washington State Administrative Code and LNI regulations, learning proper rigging terminology, and conducting site safety plans.

Offered: Winter.

REFR 122 - HVACR Year 2 Week 2 (5)

Apprentices will identify and draw schematics of specialized motors. They will be introduced to commercial refrigeration, and the unique concepts of sub-cooling, superheat, koolgas defrost, hot gas and condenser flooding, as they relate to these larger, more complex systems. They will practice brazing repairs for commercial equipment. They will use common rigging equipment, such as inside lifts, with safe consistency. They will interpret plans to locate specifications of HVACR equipment. They will identify the hardware and software of VRF system, and learn how to properly install and start them. Finally, they will apply customer service skills to every in-class project.

Offered: Winter.

REFR 123 - HVACR Year 2 Week 3 (5)

Apprentices will be introduced to specialty refrigeration, and compare differences in mechanical drawings and components to commercial systems. They will practice brazing repairs from indoor to outdoor units, and from condensing units to evaporators. They will discern when equipment can be repaired, or should be replaced. They will continue practicing plan reading to locate equipment specifications. They will learn how electrical transformers and controls work, and the unique safety considerations for both. They will continue progressing towards the Washington State Rigging Certification by safely moving equipment. They will identify the hardware and software of VRF system, and learn how to properly install and start them. Finally, they will apply customer service skills to every in-class project.

Offered: Spring.

REFR 124 - HVACR Year 2 Week 4 (5)

Apprentices will focus on troubleshooting electrical issues and use inspection methods to ensure a thorough review of equipment is safely completed. They will continue looking at specialty refrigeration systems, focusing on valve identification, maintenance, replacement or repair with brazing techniques. They will be introduced to rooftop gas furnaces and packs, and use manometers to check gas pressure in these units. They will continue progressing towards the Washington State Rigging certification by safely performing outside lifts. Finally, they will apply customer service skills to every in-class project.

Offered: Fall.

REFR 125 - HVACR Year 2 Week 5 (5)

Apprentices will earn a manufacturer's VRF install credential, and the Washington State Rigging Certification. They will demonstrate competency in a variety of light commercial, commercial and specialty refrigeration system brazes. They will be assessed in their understanding of electrical and refrigeration concepts, and their accurate application to cumulative projects.

Offered: Fall.

REFR 131 - HVACR Year 3 Week 1 (5)

Apprentices will utilize skills gained in years 1 and 2 to demonstrate competency in inspecting equipment for electrical issues, and handling refrigerants while discharging equipment. They will practice brazing skills to become proficient and earn the UA 51 Certification. They will apply trades-related math to begin bending tubing and copper for proper installations.

Offered: Winter.

REFR 132 - HVACR Year 3 Week 2 (5)

Apprentices will be introduced to economizers, and will program its logic module. They will apply concepts of absorption to specialty refrigeration, and will be introduced to additional systems, such as cascade, compound compression, and ultra-low temperature systems. They will practice taking apart, measuring, and rebuilding small compressors, including making gaskets, when needed. They will run overhead pipe, supports and hangers, and make connections to systems. They will continue developing tube bending skills by using tube benders, swaging tools and related hand tools, and they will braze related joints. They will apply fundamental pre-job organizational skills to all in-class projects.

Offered: Spring.

REFR 133 - HVACR Year 3 Week 3 (5)

Apprentices will be introduced to fundamental hydronic and steam principles. They will relate these concepts to maintaining, setting and controlling air conditioning units. They will apply job planning and sales/estimation skills to performing maintenance and repair scenarios in all in-class projects. They will continue practicing sizing and running overhead piping and making connections to equipment. They will use proper calculations to braze and disassemble a walk-in cooler. They will practice taking apart, measuring, and rebuilding larger compressors, including making gaskets, when needed.

Offered: Spring.

REFR 134 - HVACR Year 3 Week 4 (5)

Apprentices will be introduced to basic automation concepts and networking for HVAC/refrigeration controls. They will apply job planning and sales/estimation skills to performing maintenance and repair scenarios in all in-class projects. They will continue practicing sizing and running overhead piping and making connections to equipment. They will discuss how to maintain components of hydronic systems found in HVACR equipment. They will explain how steam traps work, and how to properly size and order parts to replace or repair them. They will continue developing brazing skills to attain the UA 51 Certification, focusing on brazing overhead, in confined spaces, and with dissimilar metals. They will continue practicing taking apart, measuring, and rebuilding larger compressors, including making gaskets, when needed.

Offered: Fall.

REFR 135 - HVACR Year 3 Week 5 (5)

Apprentices will complete timed assessments showing

competency with compressors, economizers, VFD, and automation systems, including applying job planning and sales/estimation skills to these projects. They will demonstrate competency in a variety of light commercial, commercial and specialty refrigeration system brazes, including attainment of the UA 51 Certification. Apprentices in the refrigeration pathway will complete a cumulative review of supermarket equipment concepts and maintenance/repair practices. Apprentices in the HVAC pathway will complete a cumulative review of air conditioning equipment concepts and maintenance/repair practices.

Offered: Fall.

REFR 141 - HVACR Year 4 Week 1 (5)

Apprentices will complete signal person curricula for various cranes operation, regulation, and limitations, and earn a signal person credential. They will continue brazing skills gained in Years 1-3 to earn a UA 50 credential. Apprentices in the HVAC pathway will gain additional skills in variable and constant volume air conditioning systems, including analysis of temperatures, parallel boxes, and dependent/independent pressure systems. Apprentices in the refrigeration pathway will learn how to safely handle ammonia in industrial systems, including how to remove, store and charge ammonia in a system.

Offered: Winter.

REFR 142 - HVACR Year 4 Week 2 (5)

Apprentices will gain insights into common supervisory and industry issues. They will also learn all aspects of job planning, from pre-job considerations through the build and commissioning/punch list process. In all of this content, they will continually apply appropriate and effective communication skills, verbally and in writing. They will understand how projects are financed and fiscally managed. Finally, they will gain skills to be an effective technical teacher as a journeyman in the field, which includes applying teaching skills of giving instruction, checking for understanding, and providing feedback/evaluation. Apprentices in the HVAC pathway will learn about the hardware and networks associated with direct digital controls, and will learn how to draw, sequence and program them. They will also gain PLC troubleshooting skills. Apprentices in the refrigeration pathway will be introduced to common and unique refrigeration systems, including cases and walk-in boxes. They will also review, diagnose issues, repair and rebuild a variety of TXV/Expansion, Solenoid, regulation and EPR/OPR and IPR valves.

Offered: Spring.

REFR 143 - HVACR Year 4 Week 3 (5)

Apprentices will apply hydronic theory concepts gained in Year 3 to a variety of chilled water systems. They will learn how to calculate flow rates and troubleshoot issues related to chilled water systems. Apprentices in the HVAC path will review pneumatic controls, including types of air compressors, the gasses or pressurized air used in them, and the components that regulate these units. They will test these systems for leaks or faults and learn how to repair or replace them. Apprentices in the refrigeration pathway will continued advanced refrigeration concepts by drawing electrical schematics for walk-in coolers and freezers, and learn how to locate manufacturer specifications necessary to repairs. They will compare differences in low temperature cases and gas/electric defrost cases. Additionally, they will identify the parts and issues that can arise with a variety of compressors, condensers, and defrost systems, and learn how to control, repair, replace and maintain them.

Offered: Spring.

REFR 144 - HVACR Year 4 Week 4 (5)

Apprentices will study the International Mechanical Code and related City of Seattle amendments to earn a City of Seattle Refrigeration License. They will also identify types and parts of operational boiler systems, including combustion controls, sequencing burners, and valves. They will gain insights into the water conditions that can impact the safe operation of boilers. Apprentices in the HVAC pathway will review procedures to commission a building, including testing electrical devices, evaluating the performance of mechanical systems, and steps to inspect, maintain and document a commissioned system. Apprentices in the refrigeration pathway will increase knowledge of building automation by reviewing how controller networks in supermarket systems operate, the brands, hardware and control devices commonly seen in Pacific Northwest systems. They will also learn how to operate manage parallel oil rack systems.

Offered: Fall.

REFR 145 - HVACR Year 4 Week 5 (5)

Apprentices will study the International Mechanical Code and related City of Seattle amendments to earn a City of Seattle Refrigeration License. They will also begin an extensive electrical theory, math and code review to be prepared for the Washington State 06A Electrical Examination. Finally, apprentices will take a STAR exam pre-assessment to determine whether they require additional, in-person learning to earn this certificate in their 5th year.

Offered: Winter.

REFR 150 - HVACR Year 5 (5)

Apprentices will be assigned to either online or in-person preparatory coursework to study and pass the cumulative STAR exam and City of Seattle Gas License exam. Finally, apprentices will take the electrical exam prep course and earn their 06A Electrical License from the State of Washington.

Offered: Winter.

PSYC-HumanitiesSocial SciencesOther

PSYC& 100 - General Psychology (5)

Introductory psychology for people with an interest in all that influences human behavior. Whether planning a career in psychology or gaining insights about yourself and others, you will find this a useful and interesting open enrollment course of study.

Distribution: Gen-Ed.

PSYC& 200 - Lifespan Psychology (5)

This course is an introduction to the various states of human development. Emphasis is on the major theories and perspectives and their relationship to the physical, cognitive and psychosocial aspects of development across the lifespan.

Distribution: Gen-Ed. Prerequisite: PSYC&100.

READ-Communcation English Composition

READ 89 - Transitional Reading (5)

Reading skills course for students with a vocational education goal who, at intake, score 236 or higher on a CASAS Reading test. Students progress to READ 090, WRIT 085, ENGL 090 or ENGL 091 based upon instructor recommendation

Distribution: Gen-Ed.

SHME-Sheet Metal Technology

SHME 101 - Introduction to Sheet Metal Technology (3)

Students are introduced to basic hand tools and machines that are used within the sheet metal shop atmosphere. Students are provided instruction and training in workplace human behaviors and interpersonal skills required within the sheet metal occupation. Attendance, punctuality, self-management skills, classroom, shop participation and employer expectations are emphasized

Distribution: Career Training. Offered: 1.

Outcomes
Use basic hand tools and machines
Describe the function of sheet metal machines
Interact in a professional manner
Identify employer expectations

SHME 103 - Fitting Fabrication I (7)

Students demonstrate how to fabricate a variety of commonly used heating and air conditioning (HVAC) elbows, Y branches, and transitional fittings. Students assemble fabricated fittings to form a maze and fabricate custom fittings to complete final assembly. This area of the program begins developing students technical reading skills

Distribution: Career Training. Offered: 1.

Outcomes
Fabricate basic various HVAC fittings
Assemble basic various HVAC fittings
Cut and form transverse connectors
Identify available technical manuals and analytical procedures
Analyze, interpret, and implement technical information
Work independently as well cooperatively work with others

SHME 105 - Materials Technology (3)

Students are introduced to and demonstrate how to apply various elements of material handling and transporting goods used in the sheet metal industry. The subjects covered are tying knots, crane signals, creating travel plans and becoming certified for a straight mast forklift operator

Distribution: Career Training. Offered: 1.

Outcomes
Tie commonly knots in the industry
Use proper hand signals to direct cranes
Plan a material delivery trip
Become certified for a straight mast forklift operator

SHME 107 - Applied Math (5)

Students are introduced to and develop the skills to understand and solve mathematical problems that have direct application to the fabrication and cost estimation of sheet metal components. These assignments include the foundational principles of basic mathematics with equations involving fractions, decimals, percentages, practical geometry construction and trigonometry

Distribution: Career Training. Offered: 2.

Outcomes
Solve problems containing fractions and decimals
Perform ratio and proportional problems
Solve geometric area, volume and perimeter problems
Make metal bend allowance calculations
Solve trigonometric design and fabrication problems

SHME 112 - Fitting Fabrication II (8)

Students continue to develop their layout and fabrication skills pertaining to transitional ogee offsets, drop cheek elbows, offsetting square to rounds, rectangular wyee branches and round elbows. Students exercise their critical thinking skills as well as the production techniques that they have learned to this point in the program.

Distribution: Career Training. Offered: 3.

Outcomes
operate hand tools
operate hand forming machines
operate powered hand tools
operate powered forming machines
exercise critical thinking skills relating to fabrication and assembly of components
perform well under time constraints

SHME 120 - Introduction to Sheet Metal Technology (3)

Introduction to basic hand tools and machines that are used within the sheet metal shop atmosphere.

Distribution: Career Training.

SHME 124 - Fitting Fabrication (4)

Students fabricate a variety of commonly used heating and air conditioning (HVAC) elbows, "Y" branches, and transitional fittings.

Distribution: Career Training.

SHME 125 - Applied Math (3)

Students learn how to understand and solve mathematical problems that have direct application to the fabrication and cost estimation of sheet metal components.

Distribution: Career Training.

SHME 127 - Prefabricated Components (2)

Students learn to identify system componentsand applications

Distribution: Career Training.

SHME 128 - Materials Handling Technology (2)

Students learn to apply various elements of material handling and transporting goods used in the sheet metal

industry.

Distribution: Career Training.

SHME 129 - Wood working Tools (1)

Students are shown how to safely use carpentry power tools used for modifying wooden structures

Distribution: Career Training.

SHME 130 - Carpentry Installation (3)

Students learn to measure, layout and cut wooden elements of the residential structure for installation

Distribution: Career Training.

SHME 131 - Air Properties Technology (1)

Students are introduced to properties of air, air handling principles, and HVAC system requirements

Distribution: Career Training.

SHME 132 - Duct Installation (3)

Students learn how to install ducting systems, to include main supply ducts, return ducts, wall stacks, and lateral ducts.

Distribution: Career Training.

SHME 133 - Residential Venting Technology (2)

Students determine proper size for, and install a variety of venting examples for home heating and exhaust systems

Distribution: Career Training.

SHME 134 - Unit Operations (2)

Students are introduced to HVAC systems used in residential installations. Systems include electric furnaces, heat pumps, and gas furnaces.

Distribution: Career Training.

SHME 135 - Code Principals (2)

Students navigate through various code publications for reverent information pertaining to installation practices for sheet metal

Distribution: Career Training.

SHME 136 - Gas Piping Technology (2)

Students select appropriate pipe size, cut pipe, and use pipe machine to thread pipe.

Distribution: Career Training.

SHME 137 - Duct Design Technology (3)

Students learn how to use a Ductulator® to determine duct sizing.

Distribution: Career Training.

SHME 138 - Preventive Maintenance (2)

Students are introduced to perform basic preventive maintenance procedures on a variety of furnaces and heat pumps.

Distribution: Career Training.

SHME 150 - Hand Tools and Machines (5)

Students learn how to use various specialty hand tools in the shop atmosphere and the proper use of metal cutting shears, bending machines, forming machines, and common power tools. Students learn about circumference rules, framing squares, numerous marking tools, metal cutting shears, and joining tools. Students learn about machines to form complex seams, cleats and locks used in the fabrication and assembly of ventilation fittings.

Distribution: Career Training. Offered: 1.

Outcomes
recognize layout, marking tools and how they are used in the sheet metal industry
recognize various types of hand and power shears and how they are used in the sheet metal industry
recognize power sheet metal seam forming machines and how they are used in the sheet metal industry
recognize power sheet metal shearing machines and how they are used in the sheet metal industry

SHME 151 - Safety and Health (4)

Students are introduced to the principles of safety and health and hazardous communications as they relate to construction. An introduction to the OSHA/WISHA guidelines, occupational standards are included. Students complete written assignments on these subjects. Students apply various principles in the shop area as they proceed through the program

Distribution: Career Training. Offered: 2.

Outcomes
recognize and apply Safety and Health standards
recognize and apply HAZ COM standards
recognize and apply OSHA/WISHA standards
recognize and apply Occupational Health standards
successfully complete OSHA 10 course on safety practices

SHME 152 - Drafting I (6)

Students are introduced to basic terminology, drafting lines, labeling and object protection. Students create hand drafted assignments that develop basic, orthographic and isometric views of shapes and sheet metal components. Students develop the skills necessary to visualize and understand common and complex sheet metal components. Students apply triangulation principles and are introduced to parallel line development techniques.

Distribution: Career Training. Offered: 2.

Outcomes
recognize and list uses of basic drafting instruments
competently arrange basic objects accurately on drafting paper
distinguish between various basic views and drawing techniques used in the sheet metal industry
apply principles from the basic types of layout processes used in the sheet metal industry
apply basic layout principles separately or using a combination of these to complete assigned drafting and fabrication projects

SHME 153 - Architectural Sheet Metal (5)

Intermediate students are introduced to principles and applications of architectural flashings, coping, gutters, downspouts, louvers, metal siding and conductor heads. Tasks involved design, fabrication and installation of these items using SMACNA Architectural Sheet Metal Standards.

Distribution: Career Training. Offered: 3.

Outcomes
design, fabricate and install a scupper and a conductor head to SMACNA Architectural Sheet Metal Standards
design, fabricate and install gutters and downspouts to SMACNA Architectural Sheet Metal Standards
recognize and list uses of basic architectural sheet metal components
design and fabricate a louver to SMACNA Architectural Sheet Metal Standards
install metal siding to SMACNA Architectural Sheet Metal Standards

SHME 203 - Blueprint Reading Applications (5)

Advanced students research information from numerous types of blueprints dealing with all aspects of the construction process. Students are assigned plans and answer questions pertaining to the computer aided designs of highly detailed ventilation systems that are installed in current applications

Distribution: Career Training. Offered: 4.

Outcomes
Interpret advanced components of construction blueprints
Interpret components of computer aided designs of highly detailed heating and ventilation blueprints
Interpret detail sheets of computer aided designs.

SHME 206 - Complex Components Fabrication (5)

Advanced sheet metal students are challenged to apply advanced principles to design, layout and efficiently fabricate complex HVAC ducting elbows, branches, offsets, tapers, and transitions. Students will be introduced into operating the plasma burner to assist them with the pattern development of half the assigned fittings.

Distribution: Career Training. Offered: 4.

Outcomes
Design, layout, and efficiently fabricate complex HVAC ducting elbows
Design, layout, and efficiently fabricate complex HVAC branches
Design, layout, and efficiently fabricate complex HVAC offsets
Design, layout, and efficiently fabricate complex HVAC tapers
Design, layout, and efficiently fabricate complex HVAC transitions

SHME 213 - Introduction to Blueprint Reading (4)

Advanced students are introduced to blueprint organization, terminology, sketching techniques, symbols, and lines. Using the proper techniques, students hand sketch assignments that develop oblique, perspective, isometric and orthographic projections. Students are introduced to different scales of measurements and construction materials. Students learn to interpret various blueprint specifications relating to construction.

Distribution: Career Training. Offered: 5.

Outcomes
Answer questions relating to specifications of various blueprints
Identify basic information of construction blueprints
Interpret and sketch various views of objects found in blueprints

SHME 217 - Energy Codes (2)

Intermediate students are introduced to the Washington State Energy Codes, Uniform Mechanical Codes and International Residential Codes. Open book research is conducted to answer numerous questions about items that directly apply or are associated with the installation or fabrication practices of various sheet metal applications.

Distribution: Career Training. Offered: 2.

Outcomes
Students will identify WA Energy Codes pertaining to sheet metal occupation standards
identify Uniform Mechanical Codes pertaining to sheet metal occupation standards
identify international Residential Codes pertaining to sheet metal occupation standards

SHME 250 - Drafting II (7)

Advanced sheet metal students continue to develop the spatial thinking skills necessary to visualize and understand more complex sheet metal components. Advanced sheet metal students apply principles dealing with parallel line, radial line, triangulation and/or combinations of all three areas of layout.

Distribution: Career Training. Offered: 4.

Outcomes
recognize and list uses of parallel line development concepts on complex sheet metal components
recognize and list uses of radial line development concepts on complex sheet metal components
recognize and list uses of triangulation development concepts of complex sheet metal components

SHME 251 - Duct Design and Air Balancing Concepts (5)

Advanced students are introduced to design and balancing terminology pertaining to this important area of the sheet metal industry. Students use mathematical formulas and computer programs to derive duct design variables such as friction loss, dynamic loss, cubic feet per minute, feet per minute, cross sectional areas, fan pulley sizes, BTUs, duct sizes and round substitutions are calculated for numerous applications.

Distribution: Career Training. Offered: 5.

Outcomes
identify and select correct math functions to use as related to duct design and air balancing
correctly use design ductulator to answer various questions pertaining to duct design and air balancing
correctly use TRANE computer programs to design systems and answer various questions pertaining to duct design and air balancing.

SHME 252 - Field Installation I (6)

Students will design horizontal and vertical ductwork systems. Students will install various types of ductwork using different types of hangers in an unconfined field/shop setting. Students will use a manual duct lift in an unconfined field/shop setting.

Distribution: Career Training. Offered: 5.

Outcomes
design horizontal and vertical ductwork systems
install various types of ductwork using different types of hangers
install various types of HVAC units
operate a manual duct lift

SHME 253 - Field Installation II (6)

Students will design horizontal ductwork systems. Students will install various types of ductwork using different types of hangers in a confined field/shop setting. Students will install various types of HVAC units in a confined field/shop setting. Students design and install gas piping in a confined field/shop setting.

Distribution: Career Training. Offered: 5.

Outcomes
design horizontal ductwork systems in a confined setting
Students will install various types of ductwork using different types of hangers in a confined setting
Students will install various types of HVAC units in a confined setting
Students will design and install gas piping in a confined setting

SHME 254 - Commercial Projects (6)

During this final stage of training, advanced sheet metal students apply their acquired knowledge of design, layout and fabrication to real world, client projects when these are available. When these types of projects are not available, students will receive assignments from the instructor. This includes handing the project from the beginning working from the client's requirements. This will include but is not limited to the project estimation of materials and shop overhead costs of the finished product or assignment.

Distribution: Career Training. Offered: 6.

Outcomes
Students will correctly design system/project requirements
Students will correctly install system/project requirements
Students will correctly fabricate system/project requirements
Students will correctly select proper tools and machines to produce project requirements

SHMET-Sheet Metal Apprenticeship JATC

SHMET 211 - SHEETMETAL APPRN 1ST YR (0-30)

Distribution: MOT.

SHMET 212 - SHEETMETAL APPRN 2ND YR (0-30)

Distribution: MOT.

SHMET 214 - SHEETMETAL APPRN 4TH YR (0-30)

Distribution: MOT.

SHMET 215 - SHEETMETAL APPRN 5TH YR (0-30)

Distribution: MOT.

SHMET 231 - SHEETMETAL APPRN 3RD YR (0-30)

Distribution: MOT.

SOC-HumanitiesSocial SciencesOther

SOC& 101 - Introduction to Sociology (5)

This course is a general survey of sociology, the scientific

study of the group life of humans in their environment. The course introduces the basic principles of social relationships, collective behavior, and human interaction. These principles are applied to the study of culture; race, gender, and class inequality; deviance; law; social institutions; and social change.

Distribution: Gen-Ed. Prerequisite: ENGL090.

STMF Steamfitter Apprenticeship SAPHP

STMF 111 - Steamfitter Year 1 Week 1 (5)

Apprentices will be introduced to basic scientific, trade-related steam and hydronic principles in order to control and transfer heat in a mechanical system. Additionally, they will practice basic math calculations necessary to properly use and measure density and volume of various products, mixtures and solvents used in a mechanical system. Students will learn how to safely use braze and weld shop equipment, per the school and the copper development association, and will begin using a progressive model to earn welding credentials that became increasingly complex over time.

Distribution: Apprenticeships. Offered: Winter.

STMF 112 - Steamfitter Year 1 Week 2 (5)

Apprentices will use math formulas to calculate liquids in pipes, grades and slopes, and to complete roll grooves. They will learn the differences among architectural, engineering and metric scale rulers, and begin drawing basic shapes found in mechanical drawings using the architectural scale. Apprentices will continue learning about the components of hydronic and steam systems, focusing on pumps and low pressure boilers. They will continue brazing and welding, using a progressive model to track their skill advancement. Also, they will safely use devices, such as chainfalls and lifts, to move and measure pressure in the rolled grooves they fabricate.

Distribution: Apprenticeships. Offered: Spring.

STMF 113 - Steamfitter Year 1 Week 3 (5)

Apprentices continue using math formulas to measure volume, capacity, proportions as they impact pipe safety, measuring, and installation, as well as calculations for expansion and contraction of pipe. They will continue drawing basic pipe shapes in an isometric design. Apprentices will learn how to safely thread a joint. They will continue learning theoretical hydronic and steam principles that impact the safety and ability to control heating/cooling systems. Finally, they will continue brazing and welding, using a progressive model to track their skill advancement.

Distribution: Apprenticeships. Offered: Summer.

STMF 114 - Steamfitter Year 1 Week 4 (5)

Apprentices will apply math formulas, such as the pythagorum theorem, to calculate piping offsets. They will explain how water can impact piping systems. They will continue increasing complex drawings with dimensions and odd angle shapes. They will continue learning about increasing complex hydronic and steam principles, and how valves are impacted by these theories. They will continue to braze and weld increasingly complex tasks following a progressive training model.

Distribution: Apprenticeships. Offered: Fall.

STMF 115 - Steamfitter Year 1 Week 5 (5)

Apprentice skills will be assessed in math; hydronic and steam theories; and welding. They will use math formulas to calculate force and move, which is used to safely move materials and equipment. They will complete leak-free, threaded joints in various dimensions. They will also demonstrate safe use of various equipment used in handling and transport of tools, materials and people, including forklifts, scissor lifts, reach-alls and JLGs.

Distribution: Apprenticeships. Offered: Fall.

STMF 121 - Steamfitter Year 2 Week 1 (5)

Apprentices will gain increasing knowledge of hydronic and steam system components, such as system circuits, loops, VFDs and valves, and how scientific principles apply to the uses and installations of these parts. They will practice isometric drawings, and learn how to convert a three-dimensional orthographic projection into isometric representation. Apprentices will begin use of oxyacetelyne torches to cut and weld pipe, as well as complete simple repair tasks.

Distribution: Apprenticeships. Offered: Winter.

STMF 122 - Steamfitter Year 2 Week 2 (5)

Apprentices will continue using hydronic and steam theory to understand the functions and installations of various pumps. They will continue drawing in isometric views, and apply these skills to shop-based projects. They will build increasingly complex weld skills to connect and tack pipe. These skills can be used to repair common issues found on-t he-job for a steamfitter. New materials, such as carbon steel, will be introduced.

Distribution: Apprenticeships. Offered: Spring.

STMF 123 - Steamfitter Year 2 Week 3 (5)

Apprentices will apply hydronic and steam principles to solve specific safety issues in piping systems and their parts, particularly tanks and traps. They will also use these principles to weld air separators and chemica pot feeders into hydronic systems. They will use their drafting skills to draw tanks and offsets in isometric views from orthographic projections. They will continue practicing increasingly complex braze and weld purges, with the aim of consistently meeting the UA 50 certification standard.

Distribution: Apprenticeships. Offered: Spring.

STMF 124 - Steamfitter Year 2 Week 4 (5)

Apprentices will use hydronic and steam theory to transfer and control system fluids, particularly in terminal units, controls, and chill beams. They will complete a variety of isometric spool sheets, to be used in mitered piping projects. They will also pipe a steam trap assembly.

Distribution: Apprenticeships. Offered: Fall.

STMF 125 - Steamfitter Year 2 Week 5 (5)

Apprentices will explain types, components and installation of hydronic and system coil piping. They will be assessed on cumulative skills from weeks 1-4 of year 2 training, focusing on their ability to integrate theory, math, drawing and welding skills to complete increasingly complex projects, safely and consistent accuracy.

Distribution: Apprenticeships. Offered: Fall.

STMF 131 - Steamfitter Year 3 Week 1 (5)

Apprentices will be introduced to the basic cycle of refrigeration, and how this concept impacts the safe and proper installation and functions of HVACR equipment. They will continue learning how steam principles apply to larger, high pressure systems, and the potential hazards or considerations with these systems. They will be introduced to bending tube and pipe. They will also consistently create leak-free piping joints, using copper and threaded steel. They will be introduced to the state administrative code, terminology, and hazardous conditions of rigging equipment and pipe.

Distribution: Apprenticeships. Offered: Winter.

STMF 132 - Steamfitter Year 3 Week 2 (5)

Apprentice will continue studying high pressure steam boilers and their controls and pumps. They will be able to differentiate between air and water cooled chillers. They will also learn about open loop fluid coolers in hydronic systems. Apprentices will continue using their drafting skills to create mechanical drawings of various controls, piping and instrumentation. They will apply the math skills gained in year one to install condensate piping and drains. They will continue learning how to properly rig equipment by using industry accepted hand signals.

Distribution: Apprenticeships. Offered: Spring.

STMF 133 - Steamfitter Year 3 Week 3 (5)

Apprentices will continue producing various spool sheets for booster stations, cooling towers, and steam pressure reducing station pipes. They will demonstrate the ability to read and review spool sheets to obtain and correct information about product. They will expand tube bending skills by using benders, swage tools and various hand tools, using copper to demonstrate competency. They will explain how to install, maintain and troubleshoot issues associated with steam reducing stations. Finally, they will continue practicing safe use of rigging equipment and signals in preparation for earning a Washington State Rigging Credential.

Distribution: Apprenticeships. Offered: Spring.

STMF 134 - Steamfitter Year 3 Week 4 (5)

Apprentices will learn and apply the steps to commission steam and hydronic systems, including how to properly document the steps taken to prepare a system for operation. They will continue to apply drafting skills in the design of various spool sheets. They will learn how the principle of absorption impacts the operation of equipment. They will continue using tables, charts and software to accurately size hydronic pipe. They will be introduced to the methods and tools used to fabricate pipe at a production table. Finally, they will continue practicing safe use of rigging equipment and signals in preparation for earning a Washington State Rigging Credential.

Distribution: Apprenticeships. Offered: Fall.

STMF 135 - Steamfitter Year 3 Week 5 (5)

Apprentices will apply trigonometry formulas for right triangles, functions, and sine/cosine and tangent to welding and floor layout projects. They will integrate complex drafting skills into classroom projects. They will be introduced to GMAW welding processes for connecting and fitting pipe, as well as how to troubleshoot common GMAW issues. They will be assessed for cumulative skills gained over year three curricula, and earn the Washington State Rigging Credential.

Distribution: Apprenticeships. Offered: Fall.

STMF 141 - Steamfitter Year 4 Week 1 (5)

Apprentices will gain a broad, contextual skill set across common technologies used on job sites, including Bluebeam, Navisworks, Revit and Trimble. They will learn how to navigate and append file types in these technologies to effectively communicate site issues or changes to systems. They will complete signal person curricula for various cranes operation, regulation, and limitations, and earn a signal person credential. They will continue brazing skills gained in years 1-3 to earn a UA 50 credential.

Distribution: Apprenticeships. Offered: Winter.

STMF 142 - Steamfitter Year 4 Week 2 (5)

Apprentices will gain insights into common supervisory and industry issues. They will learn how to complete payroll and scheduling for a company. They will also learn all aspects of job planning, from pre-job considerations through the build and commissioning/punch list process. In all of this content, they will continually apply appropriate and effective communication skills, verbally and in writing. They will understand how projects are financed and fiscally managed. Finally, they will gain skills to be an effective technical teacher as a journeyman in the field, which includes applying teaching skills of giving instruction, checking for understanding, and providing feedback/evaluation.

Distribution: Apprenticeships. Offered: Spring.

STMF 143 - Steamfitter Year 4 Week 3 (5)

Apprentices will begin using pattern templates to layout, cut and weld various fabricated projects. They will begin the complex build of a modular mechanical system. They will continue learning about various materials and tools used to bend tube piping. They will be introduced to specialty welding techniques, such as back feeding, heavy wall pipe, large diameter downhill, and lay wire welds. Finally, they will be introduced to the international mechanical code, which provides the guidance needed to interpret city of Seattle refrigeration regulations, thus earning the city's license for this work.

Distribution: Apprenticeships. Offered: Summer.

STMF 144 - Steamfitter Year 4 Week 4 (5)

Apprentices will continue using pattern templates to layout, cut and weld various fabricated projects. They will continue the complex build of a modular mechanical system. They will continue studying the international mechanical code, which provides the guidance needed to interpret city of Seattle refrigeration regulations, thus earning the city's license for this work. They will be introduced to specialty welding techniques, such as back feeding, heavy wall pipe, large diameter downhill, and lay wire welds. Finally, they will be demonstrate proficiency with 1/4' tube bending to specific dimensions.

Distribution: Apprenticeships. Offered: Fall.

STMF 145 - Steamfitter Year 4 Week 5 (5)

Apprentices will be assessed on competencies gained over Year 4. They will use pattern templates to layout, cut and weld increasingly complex, fabricated projects. They will test for and earn the City of Seattle Refrigeration License. They will complete 5th year pre-assessments to determine

their individual ability to complete coursework online or in person in their final program year. Finally, they will complete a pump circulator tube installation using tube bending skills.

Distribution: Apprenticeships. Offered: Winter.

STMF 150 - Steamfitter Year 5 (5)

Apprentices will be assigned to either online or in-person preparatory coursework to study and pass the cumulative STAR exam and City of Seattle Gas License exam.

Distribution: Apprenticeships. Offered: Winter.

SOFT-Software Development

SOFT 101 - Introduction to Information Technology (5)

This course provides an overview of basic computer concepts as they apply to MIS professionals. Emphasis is on basic machine architecture including data storage, manipulation, the human-machine interface including the basics of operating systems, algorithms and programming languages

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Use a variety of widely used software packages including spreadsheet, word processing and presentation software.
Build a portfolio website.
Explain the role of and use of the Internet and its components.
Outline the programming process and the role of software in solving business-related problems.

SOFT 102 - Programming Fundamentals (5)

This course covers core JavaScript language constructs to build a foundation of its syntax. Use values, variables, decision structures, functions, array, strings, HTML form manipulation, cookies, debugging and other techniques.

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate the principles of creating effective web pages using W3C standards, Hypertext Markup Language (HTML5) and Cascading Style Sheets
Create and manipulate web page content, tables, image, typography, and forms applying responsive design principles
Demonstrate understanding to apply methodical use of Cascading Style Sheets
Use advanced query techniques such as window functions, pivoting, and grouping sets

SOFT 121 - C-Sharp I (5)

In this course, students will develop fundamental concepts and techniques for analysis, design, and implementation of computer programs using an object-oriented language. Includes graphical user interfaces, event driven programming and simple data structures

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Research, read, and write API documentation
Summarize object-oriented programming terminology and concepts (e.g., class, instance, encapsulation, etc.)
Design and implement a program that contains multiple programmer-defined classes using object oriented principles
Write code to catch and handle errors and exceptions

SOFT 123 - Web Programming w/JavaScript (5)

In this course, students will design and implement an interactive, data-driven Website. Write JavaScript programs to add useful behavior to web pages. Use and extend popular libraries such as JQuery. Use common JavaScript references to discover and use new APIs and information.

Distribution: Career Training. Prerequisite: SOFT102. Offered: Fall, Spring.

Outcomes
Write JavaScript programs to add useful behavior to web pages
Use and extend popular libraries like JQuery
Use common JavaScript references to discover and use new APIs and information

SOFT 144 - Data Structures (5)

This course develops students' knowledge in data structures and the associated algorithms. It introduces the concepts and techniques of structuring and operating on Abstract Data Types in problem solving.

Distribution: Career Training. Prerequisite: CS&141. Offered: Fall, Spring.

Outcomes
Show how data structures are represented in the computer
Manipulate data structures with basic operations
Compare different implementations of the same data structures
Evaluate algorithms and data structures in terms of time and memory complexity of basic operations using Big O notation

SOFT 204 - Open Source Programming (5)

Introduction to computing using Python. Study and create programs that perform various tasks, including text and file manipulation, internet scripting, data structures, testing, and practical problem solving with examples. Covers object-oriented programming and the Python Standard Library

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Use basic python syntax for variable use and standard language constructs, such as conditionals and loops
Describe the syntax and use of python object-oriented classes
Use the Python built-in data structures such as lists, dictionaries, and tuples to perform increasingly complex data analysis

SOFT 207 - Web Application Development (5)

Design and develop user interfaces to collect and present data and information. Implement measures to create secure web sites. Create back end database server to host websites. Design and develop pages for a typical web application.

Distribution: Career Training. Prerequisite: SOFT123. Offered: Winter, Summer.

Outcomes
Design and develop user interfaces to collect and present data and information
Implement measures to create secure web sites
Create back end database server to host website
Design and develop pages for a typical web application

SOFT 210 - Mobile Application Development I (5)

This course introduces building applications for mobile devices. Covers mobile programming principles. Explores application life cycle, user interfaces, data management, memory management and web services.

Distribution: Career Training. Prerequisite: CS&141. Offered: Winter, Summer.

Outcomes
Create intuitive, reliable software on a mobile device platform
Design UIs that work seamlessly with a range of phones and tablets
Manage data with content providers and the SQLite database

SOFT 211 - Mobile Application Development II (5)

This course introduces building applications for mobile devices. Covers mobile programming principles. Explores application life cycle, user interfaces, data management, memory management and web services.

Distribution: Career Training. Prerequisite: SOFT211. Offered: Fall, Spring.

Outcomes
Utilize Location and Background Services to enhance marketability of the application
Utilize Broadcast Intents to use external APIs
Create basic animation in mobile applications
Publish three applications using programming specifications

SOFT 212 - Advanced Python Programming (5)

This advanced Python programming course is designed for students who have a solid foundation in basic Python

concepts and want to deepen their understanding and proficiency in the language. The course explores advanced topics and techniques in Python programming, equipping students with the skills to tackle complex coding challenges and develop efficient, scalable, and maintainable Python applications. Through a combination of lectures, hands-on coding exercises, and real-world projects, students will gain practical experience in applying advanced Python concepts to solve problems and build sophisticated software solutions.

Prerequisite: SOFT 204 or Instructor Permission. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Demonstrate a deep understanding of advanced Python features, including decorators, generators, and context managers.
Identify and implement design patterns in Python to solve common software design problems.
Develop an awareness of best practices for designing scalable and modular Python applications.
Execute advanced data structures and algorithms in Python.
Develop effective debugging strategies to identify and fix errors in complex codebases.
Apply acquired knowledge and skills to complete real-world projects that simulate industry scenarios.
Demonstrate mastery of Git for version control, collaborative coding, and managing project repositories.
Explore emerging trends and tools that enhance productivity and efficiency in Python development

SOFT 213 - Introduction to Machine Learning (5)

This course serves as an introduction to the fundamental principles and techniques of machine learning, a dynamic field at the intersection of computer science and statistics. Students will explore the foundational concepts underlying machine learning algorithms, gaining hands-on experience with implementing and applying these techniques to real-world problems. The course will cover a range of topics, including supervised and unsupervised learning, regression, classification, clustering, and evaluation metrics

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Prepare data for machine learning tasks.
Implement and evaluate models using popular algorithms like linear regression, decision trees, and support vector machines.
Utilize programming languages such as Python and relevant libraries (e.g., scikit-learn) for implementing machine learning algorithms.
Apply machine learning techniques to real-world scenarios and case studies.
Discuss ethical considerations and potential biases in machine learning applications.
Engage in collaborative projects and discussions to enhance critical thinking skills.
Develop the ability to communicate machine learning concepts and results effectively.
Create reports and presentations that convey insights and findings from machine learning projects.

SOFT 214 - Introduction to Deep Learning Fundamentals (5)

This course is designed to introduce students to the exciting field of deep learning, a subset of machine learning that has revolutionized artificial intelligence. Deep learning techniques, inspired by the structure and function of the human brain, have enabled computers to learn and make decisions from data with unprecedented accuracy. In this course, students will explore the foundations of deep learning, understand its applications in various domains, and gain hands-on experience implementing deep learning models.

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring.

Outcomes
Define deep learning and understand its significance in the broader field of artificial intelligence.
Explore the historical development and key milestones in deep learning.
Develop a foundational understanding of neural networks, including basic architecture and functioning.
Apply the principles of model training, including loss functions and optimization algorithms.
Gain hands-on experience with popular deep learning libraries such as TensorFlow and PyTorch.
Understand the practical aspects of building, training, and evaluating deep learning models.
Understand the role of deep learning in Natural language processing (NLP) and understanding natural language.
Implement basic reinforcement learning algorithms and understand their use cases.

SOFT 215 - Introduction to Neural Networks (5)

This course provides an in-depth introduction to the fundamental principles, architectures, and applications of neural networks. Students will explore the theoretical foundations of neural networks, understand their mathematical underpinnings, and gain practical hands-on experience in designing and implementing neural network models. The course covers a range of topics, from basic concepts to advanced architectures such as deep neural networks and convolutional neural networks. Real-world applications, including image recognition, natural language processing, and pattern recognition, will be examined to illustrate the practical utility of neural networks. Through a combination of lectures, practical exercises, and projects, students will develop the skills needed to apply neural networks to solve complex problems.

Prerequisite: N/A. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Explain the structure and function of a basic perceptron.
Study the architecture and training of deep neural networks (DNNs).
Investigate convolutional neural networks (CNNs) for image recognition.
Create hands-on projects to apply neural networks to practical problems.
Evaluate the performance of neural network models.
Explore techniques for fine-tuning and optimizing model parameters.
Examine ethical considerations related to the use of neural networks.
Discuss the societal impact of neural network applications.

SOFT 290 - Capstone Project (5)

This course offers students an opportunity to work on a project researching and applying skills and technologies learned. The project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Demonstrate compentency on personalized outcomes agreed ahead of time between student and instructor

Automation & Mechatronics, TRON

TRON 110 - Introduction to Robotics/Automation (1)

This course is available to all students in their first quarter of instruction and serves as an overview of the industry as a whole, in order that the student can put their skills in perspective as they are acquired.

Distribution: Career Training.

Outcomes
Differentiate between 'robot' and 'robotics'.
Compare three types of energy tranfer used in automation, in terms of applicability, process, advantages and shortcomings.
State the advantages of automation in manufacturing.
Demonstrate basic understanding of SOP's and their purpose in a manufacturing environment. Identify major components of SOPs.

TRON 111 - Analog Electronics (5)

Electrical energy is very important in Mechatronics; it provides the driving force for most industrial processes. This course begins with a discussion of energy conservation and management, proceeds through a study of basic DC and AC electricity and concludes with an introduction to solid state.

Outcomes
Using Industry-relevant equipment and to industry standards of time and accuracy, determine the distribution of energy among the components of an analog electrical circuit.
Compare and contrast DC and AC electricity.
Using industry-relevant equipment to industry standards of time and accuracy, identify common amplifier circuits and prove their operation in a lab setting.
Using industry-relevant equipment and to industry standards of time and accuracy, specify the frequency filtering characteristics of a reactive electrical circuit and prove your specifications.
Describe transistor function and application to the industry.

TRON 114 - Measurement (4)

In order to troubleshoot effectively, technicians must be able to take mechanical and electrical measurements. This course provides experience in taking these measurements, making use of meters, oscilloscopes, calipers and other measurement devices commonly used in automation and robotics.

Distribution: Career Training.

Outcomes
Using industry-relevant equipment and to industry standards of time and accuracy, measure electrical voltage, current and resistance.
Using industry-relevant equipment and to industry standards of time and accuracy, determine the dimensions of a physical object.
Independently and safely select and handle precision measurement tools in the course of work, identifying problems with tool selection, set-up and handling and knowing how/when to escalate.
Using industry standards of time and accuracy, convert measurement data between systems of units.

TRON 117 - Introduction to PLC (4)

The Programmable Logic Controller, or 'PLC', functions as the brain in most automated operations. This course serves as an introduction to what PLCs do; how they are programmed and wired into a machine, using simulated exercises. Later coursework will develop strong skills in this area; this introductory course sets the stage.

Distribution: Career Training.

Outcomes
State the function of a PLC in and industrial application.
Using industry-relevant equipment and to industry standards of time and accuracy, program and document a bit level instruction.
To industry standards of time and accuracy, program and document a compare instruction.
To industry standards of time and accuracy, program and document a word instruction.
To industry standards of time and accuracy, program and document a timer instruction.
To industry standards of time and accuracy, program and document a counter instruction.

TRON 121 - Digital Electronics (5)

Computers and their programs operate using binary numbers, i.e. ones and zeros. This course uncovers what ones and zeros are, what they mean and how they are manipulated in order to perform calculations. Lab work is done using online simulations.

Distribution: Career Training.

Outcomes
To industry standards of time and accuracy, solve a problem using digital logic and Karnaugh mapping
State how ones and zeros are represented electronically.
Describe how fundamental logic gates are used to make decisions based on binary data.
To industry standards of time and accuracy, convert between decimal, binary and hexadecimal systems.
Using industry-relevant equipment and to industry standards of time and accuracy, troubleshoot a digital circuit to industry standards.

TRON 124 - Pneumatics and Hydraulics (4)

Hydraulics is the process of using fluid to transmit energy, as does the power steering system in an automobile, while Pneumatics employs air, as do the tools one connects to an air compressor. Students will use the basic principles of hydraulics to perform calculations related to pressure and force, and will build hydraulic circuits to demonstrate these principles.

Distribution: Career Training.

Outcomes
State the relationship between force, pressure, and area.
Explain the process of regeneration.
Using Industry-relevant equipment and to industry standards of time and accuracy, apply regeration to equalize cylinder extension and retraction speeds.
Describe hazards associated with the use of hydraulics and pneumatics.
Demonstrate situational awareness to protect themselves and the product when operating fluid systems. Describe basic safety precautions that should be taken.
Exlain how air used to transmit energy must be prepared.
Define the gas laws that affect temperature, volume and pressue and how they are measured.
To industry standards of time and accuracy, apply the Universal Gas Law to determine unknown parameters.
Using industry-relevant equipment and to industry standards of time and accuracy, perform the fundamental methods of installing, cleaning, replacing, testing, troubleshooting, and preventative maintenance regarding fluid power components in pneumatic and hydraulic systems

TRON 127 - Blueprint Reading (4)

Technicians find many ways to communicate technical information; one of the primary ways is through the use of drawings and sketches. This course introduces the conventions used in creating and interpreting these drawings and reviews other common forms of documentation. Lab work will be done remotely.

Distribution: Career Training.

Outcomes
To industry standards of time and accuracy, compare and contrast the types of lines used in technical drawings.
Given an object, create a three-view sketch to industry standards of time and detail.
To industry standards of time and accuracy, transfer measurement paramenters from the measurement device to drawing of the object
Interpret common GD&T specifications on drawings such as to tolerancing symbols, tolerance zones, modifiers and limitations. Understands part requirements and is able to interpret GD&T specs including simultaneous requirements and multiple single-segment tolerances.
Produce a documentation package for an assembly in our lab, to industry specs of time, accuracy and presentation

TRON 131 - Career Success Seminar (3)

Not all of the skills required for success involve electricity, mechanics or programming. The abilities to communicate, to think critically and make well-considered decisions are abilities that are highly sought after in addition to the technical skills. This course introduces the student to many of these skills including study skills, test-taking skills, stress and resource management.

Distribution: Career Training.

Outcomes
Complete a learning style inventory
Identify and assess stressors, develop a personal stress management action plan.
Demonstrate how positive attitudes lead to effective goal setting and student success.
Apply a range of study strategies enabling student and professional success.
Successfully demonstrate basic computer office skills

TRON 134 - Computer Technology (4)

As the use of desktop computers and IP-based networking replaces dedicated industrial networks, the need for mainstream computer and networking skills has increased. This course is designed to provide the basic computer knowledge and skills to foster a working understanding of

computer networks.

Distribution: Career Training.

Outcomes
Using industry-relevant equipment and to industry standards of time and accuracy, install and verify operation of computer components.
Using industry-relevant resources and to industry standards of time and accuracy, install, troubleshoot and verify operation of peripheral devices.
Using industry-relevant resources and to industry standards of time and accuracy, select, install and setup a network interface card.
Using industry-relevant resources and to industry standards of time and accuracy, apply LINUX shell commands
Using industry-relevant resources and to industry standards of time and accuracy, build a computer from components.

TRON 137 - Mechanical Systems (5)

When we put machinery in motion, the forces and energies must be balanced and controlled in order to accomplish the task at hand. This course introduces the components typically used to manage and distribute mechanical forces, including clutches, gears, and brakes and discusses the underlying physics which predicts their operation.

Distribution: Career Training.

Outcomes
Using industry-relevant resources and to industry standards of time and accuracy, determine the speed and torque characteristics of a driven gear.
Using industry-relevant equipment to industry standards of time and accuracy, compare and contrast the different types of clutch used in mechanical subsystems in terms of their function, as well as typical application(s).
Using industry-relevant equipment to industry standards of time and accuracy, compare and contrast the different types of lubricant used in mechanical subsystems in terms of their typical applications(s), as well as any associated hazards.
Identify complex components of drive systems and apply knowledge of how the components work together in order to troubleshoot systems with minimal supervision.

TRON 141 - Sensing our Environment (4)

PLCs and other controllers are often called upon to make decisions on environmental variables such as temperature, pressure, mass or content. Sensors and transducers are used to collect this data and 'send' it to the Controller. This course introduces the types of devices used to collect sensory data and how they are interfaced to the Controller using the Arduino as a catalyst.

Distribution: Career Training.

Outcomes
As applicable to industry standards, compare and contrast sensors and transducers.
Describe techniques used in industry to determine temperature
Describe techniques used in industry to determine pressure
Describe techniques used in industry to determine metal content
Explain the process of Analog-to-Digital (A/D) conversion as applicable to automation.
Describe various types of proximity sensor used in automation processes.

TRON 144 - Critical Thought and App. (5)

This is primarily a troubleshooting course. It emphasizes the thought processes used to successfully solve a problem.

Distribution: Career Training.

Outcomes
Give industry-relevant examples of inductive and deductive reasoning
Evaluate the credibility of industry-relevant sources and information
Distrnguish opinions from conclusions; facts from beliefs.
Evaluate the logic, validity and relevance of data.

TRON 147 - Embedded Controllers (5)

Some equipment is so complex it requires its own built-in (embedded) controller, which then communicates with the larger, system Controller or PLC, thereby freeing up the PLC from repetitive, mundane tasks. This course is a hands-on discussion of how these embedded controllers are programmed and applied to solve a problem.

Distribution: Career Training.

Outcomes
Explain how the use of embedded controllers can increase the efficiency of a mechatronic system.
Using industry-relevant equipment and to industry standards of time and accuracy, use a code monitor to validate intermediate processes.
To industry standards, fully document a program to include header information and comments relating to its functationality and interfacing.
Using industry-relevant equipment and to industry standards of time and accuracy, program an embedded controller to source digital outputs.
Using industry-relevant equipment and to industry standards of time and accuracy, program an embedded controller to source digital inputs.
Using industry-relevant equipment and to industry standards of time and accuracy, program an embedded controller to perform an analog to digital conversion.

TRON 211 - Industrial Robotics I (5)

Students will develop, install, verify and troubleshoot PLC programs which control actual electromechancal systems.

Distribution: Career Training.

Outcomes
Using industry-relevant equipment and to industry standards of time and accuracy, interface a PLC in order to automate a mechatronic process.
Using industry-relevant equipment and to industry standards of time and accuracy, utilize a PLC to manage pneumatic energy.
Using industry-relevant equipment and to industry standards of time and accuracy, fully document a PLC program
To industry standards, fully document a program to include header information and comments relating to its functationality and interfacing.

TRON 214 - Motors & Control Systems (5)

Motors and their associated controls are an important part of most manufacturing processes. Along with hydraulics and pneumatics, motors are responsible for converting electrical energy to mechanical motion.

Distribution: Career Training.

Outcomes
As applicable to industry standards, compare and contrast DC and AC motors, stepping motors and servos.
As applicable to industry standards, describe how AC motor drives vary the motor speed.
Specify a motor type to solve a specific industry-related problem.
Discuss the advantages and disadvantages of three-phase power delivery as applicable to automation.
Perform wye-delta conversions to industry standards of time and accuracy industry standards of safety, accuracy and timeliness.
Identify the components and function of each part of a VFD appropriate and industry relevant uses for VFD's.
To industry standards of safety, timeliness and accuracy, install a complete three phase 240 Volt motor control station to include start, stop, forward, reverse, jog and e-stop.

TRON 217 - Introduction to CNC Machining (3)

PLCs are used in a variety of applications including the machining of parts. In this environment, they are referred to as 'Computer Numeric Controls, or 'CNC'. This course presents a comparison of these two similar assemblies, and discusses how programmable logic is used in machining.

Distribution: Career Training.

Outcomes
Discuss methods used to convert mechanical drawing data into a CNC program.
Compare the advantages and techniques of additive versus subractive manufacturing.
Identify basic techniques, concerns and tools that would be used with steel material, including the ability to interpret markings on steel pieces.
Identify basic polymer and composite processing techniques, including storage and handling considerations.
Identify basic techniques, concerns and tools that would be used with aluminum materials, including the ability to interpret markings on aluminum pieces.

TRON 221 - Shop Floor IT (4)

In many cases, discrete assemblies are made to work together to accomplish a task. In these cases, PLCs and other controllers must communicate with each other in order to coordinate their actions. They do this through the use of both dedicated and IP-based computer networks, and this course introduces those methodologies through

online simulation.

Distribution: Career Training.

Outcomes
To industry standards of safety, timeliness and accuracy, attach a node to an IP network
To industry standards of safety, timeliness and accuracy, determine a networked device's IP address and/or MAC address.
To industry standards of safety, timeliness and accuracy, determine connectivity between node and server.
Define common terms used in industrial networking.
To industry standards of safety, timeliness and accuracy, verify a submet mask.

TRON 224 - Industrial Robotics II (5)

Students continue to augment and polish skills earned in Industrial Robotics I, practicing their craft on robots and systems of a more complex nature.

Distribution: Career Training.

Outcomes
Demonstrate how air under pressure can be used to create motion.
Apply safety protocols in order to effectively manage stored energy.
Using industry-relevant resources and to industry standards of time and accuracy, fully document a PLC program.
Using industry-relevant equipment and to industry standards of time and accuracy, utilize a PLC to manage pneumatic energy.
Using industry relevant equipment and to industry standards of time and accuracy, interface a PLC in order to automate a mechatronic process.

TRON 227 - Independent Projects (5)

This capstone course allows students to explore areas of their own interest in preparation for post-graduation employment.

Distribution: Career Training.

Outcomes
Independently apply knowledge of hydraulic, pneumatic, electrical and controls systems to robotics and machine tools maintenance tasks.
Provide appropriate industry-compliant paperwork for all work performed.
Accurately identify appropriate vendor(s) and quotes for relpacement parts.
Plan a project using a Gantt chart (or other project tracking software).
Deliver a weekly progress report.

TRUCK-Commercial Truck Driving

TRUCK 120 - Commercial Truck Driving - Class B (8)

This preparation course provides students the opportunity to prepare, practice, and study the Department of Licensing (DOL) regulations for the Class B endorsements. This course meets the requirements for the preparation standards of the Federal Motor Carrier Safety Administration for the Class B requirement.

Distribution: Career Training. Prerequisite: Must meet WA State CDL application requirements.

Outcomes
Obtain a Class B CDL Learners Permit
Demonstrate understanding about the three parts of the WA CDL Skills Test: (1) Pre-trip inspection, (2) Backing exercises - straight, offset, and 90-degree, (3) Road driving 30-40 minutes and evaluate skills they must master in order to pass all three of the final state CDL test.
Display behavior consistent with acceptable work habits, health habits, and interpersonal attributes following FMCSA standards.

WBAS-Welding

WBAS 101 - Welding Basics (8)

This course is an introduction to industry-standard welding and cutting processes. Safety principles, equipment setup, and the use of tools and materials are presented

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

WEB-Web development

WEB 102 - Web Development I (5)

In this course, students will be using a text editor, building a strong foundation in HTML, XHTML, and Cascading Style Sheets (CSS) so students can migrate to HTML editors. Students write code integrating CSS right from the start to reinforce concepts and skills learned

Distribution: Career Training. Offered: Fall, Spring.

WELD-Welding

WELD 101 - Safety Principles (2)

This course is an introduction to the safety practices and procedures common to the welding industry

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Follow OSHA and WISHA safety guidelines

WELD 104 - Oxyacetylene Cutting (3)

This course is an introduction to the use of oxy/acetylene welding and cutting equipment

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up oxyacetylene cutting equipment
Burn material using hand held torch

WELD 105 - Introduction to Shielded Metal Arc Welding (5)

This course is an introduction to the SMAW process with emphasis safety and theory. This class is the beginning in developing eye - hand coordination using fast fill SMAW electrodes on different grove designs and weld positions

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up SMAW equipment
Make fillet welds using fast fill rods
Make fillet welds using fast freeze rods

WELD 108 - Full Penetration Welds - Flat/Horizontal (5)

This course is an extension of weld 107, using more advanced welding techniques in the flat and horizontal positions

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Make full penetration welds in the flat position using fast fill rod

WELD 109 - Full Penetration Welds - Vertical/Overhead (5)

This course is an extension of weld 107, using more advances welding techniques in the vertical and overhead positions

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Make full penetration welds in the vertical/overhead position using fast fill rod

WELD 110 - Full Penetration Welds - Open Root (5)

This course is an advanced SMAW class using fast freeze electrodes in preparation for pipe welding

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Make full penetration welds in the overhead position using fast fill rods
Make open root welds using fast freeze rods

WELD 111 - Introduction to Gas Metal Arc Welding (3)

Students receive instruction on the GMAW process learning theory, safety, and equipment set up

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Set up GMAW equipment
Make full penetration welds on mild steel

WELD 112 - Gas Metal Arc Welding - Full Penetration (4)

In this course students use hands-on application of the different transfer modes of GMAW on mild steel in all positions

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Make full penetration welds on mild steel

WELD 113 - Gas Metal Arc Welding - Aluminum (5)

In this course students use hands-on application of the different transfer modes of GMAW on aluminum in all positions

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Set up GMAW equipment
Use GMAW process to weld aluminum
Make fillet welds on mild steel
Make full penetration welds on mild steel

WELD 114 - Introduction to Flux Core Arc Welding (4)

Students receive instruction on the FCAW process learning theory, safety and equipment set up

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up FCAW equipment
Make full penetration welds on mild steel
Make fillet welds on mild steel

WELD 115 - Flux Core Arc Welding - Full Penetration (5)

Students use the hands-on application skill of FCAW in all positions, on mild steel

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up FCAW equipment
Make full penetration welds on mild steel
Make fillet welds on mild steel

WELD 117 - Welding Symbols (5)

Students learn to read and interpret welding symbols and abbreviations using fabrication plans and drawings common to the welding industry per American welding society.

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Interpret welding symbols and abbreviations.

WELD 121 - Safety and Thermal cutting (3)

This course is both an introduction to the safety practices and procedures common to the welding industry and an introduction to thermal cutting processes.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate the ability to work safely in an industrial welding atmosphere.
Perform safe start up and shut down of an Oxy/Fuel Cutting system.
Demonstrate proficiency cutting using both manual and semi-automatic thermal cutting systems.
Demonstrate and explain the safe usage of common shop equipment.

WELD 122 - SMAW 1 E6010, E7018 (5)

This course is an introduction to the SMAW process with emphasis safety and theory. This class is the beginning of developing eye - hand coordination using fast fill and fast freeze SMAW electrodes on different groove and fillet designs in the flat and horizontal weld positions.

Prerequisite: Weld 101. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate safe work habits in an industrial welding environment
Demonstrate proper set up of SMAW equipment
Perform and identify code quality fillet and groove welds in the flat and horizontal positions.
Identify differences in Fast Fill and Fast Freeze electrodes.

WELD 123 - SMAW 2 E6010, E7018 (5)

This course is an extension of weld 105, using more advanced welding techniques in the horizontal and vertical positions.

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring, Winter, Summer.

Outcomes
Demonstrate safe work habits in an industrial welding environment
Perform and identify code quality fillet and groove welds in the horizontal and vertical positions.

WELD 124 - SMAW 3 E6010, E7018 (5)

This course is an extension of weld 108, using more advances welding techniques in the vertical and overhead positions.

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring, Winter, Fall.

Outcomes
Demonstrate safe work habits in an industrial welding environment
Perform and identify code quality fillet and groove welds in the vertical and overhead positions.

WELD 125 - GMAW Short Arc (5)

Students receive instruction on the GMAW process learning theory, safety, and equipment set up

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring, Winter, Summer.

Outcomes
Set up GMAW equipment
Perform and identify code quality groove and fillet welds in the flat, vertical and overhead positions.

WELD 126 - Gas Metal Arc Welding -Spray and Pulse transfer (5)

In this course the students learn the hands-on application of spray and pulse transfer modes of GMAW on mild steel in all positions.

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring, Winter, Summer.

Outcomes
Identify and describe key components of the spray and pulse transfer GMAW set up.
Perform and identify code quality welds in multiple positions using both pulse and spray transfer.

WELD 127 - Gas Metal Arc Welding - Aluminum (5)

In this course students use hands-on application of the different transfer modes of GMAW on aluminum in all positions

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Spring, Winter, Summer.

Outcomes
Set up GMAW equipment
Use GMAW process to weld aluminum

WELD 128 - Introduction to Flux Core Arc Welding (dual shield) (5)

Students receive instruction on the gas shielded FCAW welding process. Learning theory, safety and equipment set up

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up FCAW equipment
Make groove welds on mild steel
Make fillet welds on mild steel

WELD 129 - Flux Core Arc Welding - Self-shielded (5)

Students learn the hands-on application skill of inner-shield FCAW-s in all positions, on mild steel.

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up self-shielded FCAW equipment
Make groove welds on mild steel
Make fillet welds on mild steel

WELD 130 - Welding Blueprint Reading (5)

Students learn to read and interpret welding blueprints, complete with symbols and abbreviations common to the welding industry.

Prerequisite: None. Corequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Create and interpret welding blueprints.
Identify different weld symbols and describe their application.

WELD 131 - Oxyacetylene Welding and Brazing (5)

This course is an introduction to the use of oxy/acetylene welding and brazing equipment.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate proper set up for oxy/fuel welding and brazing.
Describe the difference between the difference between oxy/fuel welding, brazing and soldering.
Perform oxy/fuel welding and brazing on joints in different positions.

WELD 132 - SMAW Intermediate Certification Practice (5)

Students receive instruction on passing the AWS and WABO Vertical (3G) Unlimited thickness welding certification using the SMAW process.

Prerequisite: none. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up SMAW equipment
Describe the visual acceptance criteria for groove certification tests.
Describe and demonstrate ability to pass visual inspection.

WELD 133 - Advanced Certification Testing (5)

Students receive instruction on passing the AWS and WABO All-Positions, Unlimited thickness welding certification using the SMAW process.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up SMAW equipment
Describe the visual acceptance criteria for groove certification tests.
Perform the Unlimited Thickness, All-Positions SMAW Certification test.

WELD 134 - FCAW Intermediate Certification Practice (5)

Students receive instruction on passing the AWS and WABO Vertical (3G) Unlimited thickness welding certification.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up FCAW equipment
Describe the visual acceptance criteria for groove certification tests.
Describe and demonstrate ability to pass visual inspection.

WELD 135 - FCAW Advanced Certification Testing (5)

Students receive instruction on passing the AWS and WABO All-Positions, Unlimited thickness welding certification.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Set up FCAW equipment
Describe the visual acceptance criteria for groove certification tests.
Perform the Unlimited Thickness, All-Positions FCAW Certification test.

WELD 201 - Introduction to Gas Tungsten Arc Welding (5)

This course is an introduction to the gas tungsten arc GTAW welding process. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Set up TIG equipment
Weld using the TIG process

WELD 202 - Gas Tungsten Arc Welding - Full Penetration (5)

Students receive instruction on the GTAW process performing fillet and groove welds with various electrodes and filler materials on steel and stainless steel.

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Weld on mild steel using TIG process

WELD 203 - Gas Tungsten Arc Welding - Aluminum (5)

Students learn to perform GTAW fillet and groove welds on aluminum

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Weld on aluminum using the TIG process

WELD 204 - Welding Certification Testing - SMAW (5)

This course gives the student certification testing time in SMAW

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
Perform advanced welding processes/applications for testing shielded metal arc welding
Follow specific standards per AWS D1.1 Structural Code

WELD 205 - Advanced Welding Applications - Pipe/SMAW (5)

This course covers the knowledge and skills that apply to welding pipe. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead application, profile, and weld discontinuities. Students perform SMAW welds to applicable codes on carbon steel pipe with prescribed electrodes in various positions

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Spring, Spring, Summer.

Outcomes
Identify the different pipe positions.
Describe and identify the different electrodes used and why.
Identify and perform proper open-root pipe preparation.
Demonstrate the ability to weld pipe in the 6G position using the appropriate SMAW electrodes.

WELD 206 - Advanced Welding Applications - Pipe/GTAW (5)

This course is designed to enhance skills with the GTAW welding process. Topics include setup, joint preparation, and electrode selection with an emphasis on manipulative skills in all welding positions on pipe

Distribution: Career Training. Offered: Fall, Spring.

Outcomes
Perform advanced welding processes/applications on pipe of different schedules and sizes

WELD 206 - Advanced Welding Applications - Pipe/GTAW (5)

This course covers the knowledge and skills that apply to passing AWS D1.1 and/or WABO pipe welding qualification using the GTAW/SMAW process.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Spring, Winter, Summer.

Outcomes
Identify the different pipe positions.
Describe and identify the different electrodes used and why.
Identify and perform proper open-root pipe preparation
Demonstrate the ability to weld pipe in the 6G position using the appropriate GTAW and SMAW electrodes and filler.

WELD 207 - Welding Certification Testing - Flux Core (5)

This course gives the student certification testing time in flux cored arc welding (FCAW).

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
perform advanced welding processes/applications for testing flux cored arc welding
follow specific standards per D1.1

WELD 208 - Non-destructive Testing (2)

This course is an introduction to non-destructive testing methods used to detect discontinuities to help assure standards of quality in welding. Emphasis is placed on safety, types and methods of testing, and the use of testing equipment and materials

Distribution: Career Training. Offered: Winter, Summer.

Outcomes
apply industry standards and guidelines to perform tests to assure standards of quality in a variety of welding applications

WELD 210 - Advanced Welding Applications - Project (5)

This course offers the student the opportunity to use the knowledge and skills learned in class and apply then to actual projects or in the work based learning program with no lecture

Distribution: Career Training. Offered: Fall, Winter, Spring, Summer.

Outcomes
Objectives will vary depending upon the projects chosen for further study
Describe basic hand-tool safety and precautions per OSHA Standards
Demonstrate safe off hand grinding procedures.
Operate band-saw safely with 100% proficiency.

WELD 220 - Intermediate SMAW pipe cert. practice (5)

This course provides students guided practice in welding open-root grooves in various positions in preparation for pipe applications. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead placement, profile, and weld discontinuities.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify the different pipe positions.
Describe and identify the different electrodes used and why.
Identify and perform proper open-root pipe preparation.
Perform advanced welding processes/applications on pipe of different schedules and sizes.

WELD 222 - Advanced SMAW Pipe Cert. Practice (5)

This course provides students guided practice in welding open-root pipe in the horizontal fixed (5G). Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead placement, profile, and weld discontinuities.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify the different pipe positions.
Describe and identify the different electrodes used and why.
Identify and perform proper open-root pipe preparation.
Perform advanced welding processes/applications on pipe of different schedules and sizes.

WELD 223 - Intermediate GTAW/SMAW Pipe Cert. Practice (5)

This course provides students guided practice in welding open-root grooves on plate in various positions and pipe in horizontal (2G) in preparation for pipe applications. Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead placement, profile, and weld discontinuities.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify the different pipe positions.
Describe and identify the different electrodes used and why.
Identify and perform proper open-root pipe preparation
Perform advanced welding processes/applications on pipe of different schedules and sizes.

WELD 224 - Advanced GTAW/SMAW Pipe Cert. Practice (5)

This course provides students guided practice in welding open-root pipe in the horizontal fixed (5G). Topics include pipe positions, joint geometry, and preparation with emphasis placed on bead placement, profile, and weld discontinuities.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify the different pipe positions.
Describe and identify the different electrodes used and why
Identify and perform proper open-root pipe preparation
Perform advanced welding processes/applications on pipe of different schedules and sizes.

WELD 230 - Mock Certification Testing - SMAW (5)

This course gives the student certification practice time in SMAW

Prerequisite: None. Crosslisted as: N/A. Offered: Winter, Summer, Fall, Spring.

Outcomes
Perform advanced welding processes/applications for practicing SMAW testing
Follow specific standards per AWS D1.1 Structural Code

WELD 231 - Mock Certification Testing - FCAW-G (5)

This course provides an opportunity for the student to work step by step through the structural welding certification test.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Perform advanced welding processes/applications for testing flux cored arc welding.
Follow specific standards per D1.1 and WABO 27-13

WELD 232 - Mock Certification Practice-(FCAW-S) (5)

This course provides certification practice time in self-shielded flux cored arc welding (FCAW-S) process.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate safe work habits in a welding environment.
Identify the visual acceptance criteria for AWS and WABO performance qualifications
Demonstrate the ability to fabricate test coupons per shop drawings
Perform the appropriate tasks to successfully pass the WABO and AWS Unlimited Thickness, All-positions certification test

WELD 233 - Gas Tungsten Arc Welding-Steel (5)

This course is an introduction to the gas tungsten arc welding process (GTAW) on mild steel. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques

Prerequisite: None. Crosslisted as: N/A. Offered: Winter, Summer, Fall, Spring.

Outcomes
Demonstrate proper set up of GTAW equipment.
Identify and perform code quality welds on mild steel in different weld positions.

WELD 234 - Gas Tungsten Arc Welding - Aluminum (5)

Students learn to perform GTAW fillet and groove welds on aluminum

Prerequisite: None. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Identify and demonstrate proper set up of GTAW equipment for aluminum.
Identify and perform code quality fillet and groove welds in multiple positions.

WELD 235 - Gas Tungsten Arc Welding -Stainless Steel (5)

Students receive instruction on the GTAW process on stainless steel, performing fillet and groove welds in beginning to advance positions.

Prerequisite: None. Crosslisted as: N/A. Offered: Winter, Summer, Fall, Spring.

Outcomes
Identify and demonstrate proper GTAW equipment set up for stainless steel
Identify and perform proper welding technique using GTAW on stainless steel
Perform fillet and groove welds using GTAW on stainless steel.

WELD 236 - Fabrication 1 (5)

This course provides training on the selection and use of layout tools and equipment to assemble a beginning fabrication project from given specifications.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate safe working habits in an industrial welding setting
Demonstrate proper use of various layout tools.
Demonstrate the proper use of various hand tools.

WELD 237 - Capstone (5)

This course offers the student the ability to demonstrate readiness for welding employment through a combination

of comprehensive welding projects and the successful completion of an industry-based written assessment.

Prerequisite: None. Crosslisted as: N/A. Offered: Winter, Summer, Fall, Spring.

Outcomes
Demonstrate safe working habits in an industrial welding setting
Describe and demonstrate proficiency in multiple weld processes
Demonstrate correct use of measuring equipment.
Complete a professional competency based resume.
Perform either a mock or formal welding industry relevant interview.

WELD 238 - Codes and NDT (5)

This course is an overview on the different codes and standards common to the welding industry with an emphasis on AWS D1.1 and WABO 27-13. We also discuss Non-destructive testing practices, their applications as referenced in ASNT Standards and Practices.

Prerequisite: None. Corequisite: None. Crosslisted as: N/A. Offered: Winter, Summer.

Outcomes
Identify the different welding codes and their applications.
Identify the different clauses in AWS D1.1-2020
Identify and demonstrate the proper steps to produce a WPS
Identify the different NDT processes and their applications

WELD 240 - Fabrication 2 (5)

This course covers fundamentals of fabricating focusing on structural beams

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Identify different structural beams
Demonstrate proper technique for laying out structural beams.
Demonstrate proper structural beam cutting and welding technique.

WELD 241 - Fabrication 3 (5)

This course covers fundamentals of fabricating focusing on round objects.

Prerequisite: None. Crosslisted as: N/A. Offered: Fall, Winter, Spring, Summer.

Outcomes
Demonstrate proper technique for laying out round objects.
Demonstrate proper technique for cutting and welding round structures.

WELD 295 - Independent Projects (5)

This course offers the student the opportunity to use the knowledge and skills learned in class and apply then to actual projects or in the work based learning program with no lecture

Prerequisite: WELD 101. Offered: Fall, Winter, Spring, Summer.

Outcomes
Objectives will vary depending upon the projects chosen for further study
Describe basic hand-tool safety and precautions per OSHA Standards
Demonstrate safe off hand grinding procedures.
Operate band-saw safely with 100% proficiency.

Administration and Faculty Credential Guide

About

Bates Technical College faculty are required to hold a Washington state professional technical certificate as outlined in the Washington Administrative Code and rules of the State Board for Community and Technical Colleges.

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