Bates Technical College

2017-2018 Catalog

Bates TECHNICAL COLLEGE

www.bates.ctc.edu

At-a-glance

GENERAL INFORMATION

www.bates.ctc.edu, info@bates.ctc.edu, 253.680.7000

- **Downtown Campus, 253.680.7000**
- **Central/Mohler Campus, 253.680.7603**
- **South Campus, 253.680.7400**
- **Toll free in-state, 800.562.7099**

Academics, www.bates.ctc.edu/GeneralEd
academic@bates.ctc.edu, 253.680.7260

Admissions, www.bates.ctc.edu/GetStarted
info@bates.ctc.edu, 253.680.7002

Adult Basic Education/GED, www.bates.ctc.edu/GeneralEd
adult-ed@bates.ctc.edu, 253.680.7274

Advising, www.bates.ctc.edu/Advising, info@bates.ctc.edu, 253.680.7002

Apprenticeship Training, www.bates.ctc.edu/Apprenticeship
apprentice@bates.ctc.edu, 253.680.7402

Assessment/Testing Center, www.bates.ctc.edu/Testing
testing@bates.ctc.edu, 253.680.7030

Associated Student Government (ASG), www.bates.ctc.edu/ASG
253.680.7178

Barber Shop, www.bates.ctc.edu/BarberShop
253.680.7248

Books and Campus Store, www.bates.ctc.edu/CampusStores
253.680.7130 (Downtown) 253.680.7430 (South)

Campus Public Safety, www.bates.ctc.edu/Safety
253.680.7111

Career Education, www.bates.ctc.edu/CareerEd
info@bates.ctc.edu, 253.680.7000

Child Care Center, www.bates.ctc.edu/ChildCare
childcare@bates.ctc.edu, 253.680.7320

Child Studies, www.bates.ctc.edu/Family
family@bates.ctc.edu, 253.680.7500

Closure/Weather Information Line, www.bates.ctc.edu/Weather
253.680.7060

Communications, www.bates.ctc.edu/Communications
communications@bates.ctc.edu, 253.680.7106

Continuing Education, www.bates.ctc.edu/ContinuingEd
cont-ed@bates.ctc.edu, 253.680.7402

Deaf Relay Services
711 or Washington Relay, 1.800.833.6384

Dental Clinic, www.bates.ctc.edu/DentalClinic
253.680.7310

Denturist Clinic, www.bates.ctc.edu/DenturistClinic
253.680.7314

Dining Services, www.bates.ctc.edu/Dining

Disability Support Services,
www.bates.ctc.edu/DisabilitySupportServices
dss@bates.ctc.edu, 253.680.7012

Emergency Management, www.bates.ctc.edu/Emergency

Diversity Center, www.bates.ctc.edu/Diversity
diversity@bates.ctc.edu, 253.680.7178

Early Childhood Education & Assistance Program (ECEAP)
www.bates.ctc.edu/ECEAP, eceap@bates.ctc.edu, 253.680.7320

Financial Aid, www.bates.ctc.edu/FinancialAid
financialaid@bates.ctc.edu, 253.680.7020

Foundation, www.bates.ctc.edu/Foundation
foundation@bates.ctc.edu, 253.680.7160

Hearing Clinic, www.bates.ctc.edu/HearingClinic
253.680.7362

High School, www.bates.ctc.edu/HighSchool
highschool@bates.ctc.edu, 253.680.7004

High School 21+ (HS21+), www.bates.ctc.edu/HS21
adult-ed@bates.ctc.edu, 253.680.7274

Human Resources, www.bates.ctc.edu/HR
hr@bates.ctc.edu, 253.680.7181

International Student Services, www.bates.ctc.edu/International,
international@bates.ctc.edu, 253.680.7184

KBTC Public Television, www.KBTC.org
kbtc@bates.ctc.edu, 253.680.7700

Library, www.bates.ctc.edu/Library
library@bates.ctc.edu, 253.680.7220 (Downtown)
253.680.7550 (South)

Marketing, www.bates.ctc.edu/Communications
communications@bates.ctc.edu, 253.680.7102

Outreach and Recruitment, www.bates.ctc.edu/Outreach
pchase@bates.ctc.edu, 253.680.7302

Registration, www.bates.ctc.edu/Registration
registration@bates.ctc.edu, 253.680.7000

Running Start, www.bates.ctc.edu/RunningStart
running-start@bates.ctc.edu, 253.680.77264

Student Services, www.bates.ctc.edu/Student-Resources
253.680.7002

Teacher Prep and Certification, www.bates.ctc.edu/TeacherPrep
253.680.7467

Tutoring Center, www.bates.ctc.edu/Tutoring
tutors@bates.ctc.edu, 253.680.7208

Veterans Benefits, www.bates.ctc.edu/Veterans
vabenefits@bates.ctc.edu, South Campus: 253.680.7529,
Downtown Campus: 253.680.7035

Workforce Education Services, www.bates.ctc.edu/WES
253.680.7290

Worker Retraining, www.bates.ctc.edu/WorkerRetraining
retraining@bates.ctc.edu, 253.680.7127

WorkFirst, www.bates.ctc.edu/WES
253.680.7347

BATES TECHNICAL COLLEGE

Chapter One • About Bates

Welcome to Bates Technical College!

History

Technical education began in Tacoma on Sept. 4, 1940, in the basement of Hawthorne Elementary School. During the 1941-42 school year, the program became known as the Tacoma Vocational School.

In 1944 the Tacoma School District hired L. H. (LaVerne Hazen) Bates as the school's director. The school's name was changed to the Tacoma Vocational-Technical Institute in 1947.

Verne Bates retired from the director's position in 1969. The Tacoma School Board changed the Institute's name to the L. H. Bates Vocational Technical Institute in honor of Mr. Bates' service and dedication to the Institute and vocational education.

In 1991, state legislation separated the state's vocational technical institutes from local school districts and merged them under the State Board for Community and Technical Colleges.

Today, Bates Technical College annually serves approximately 3,000 career training students and 10,000 more community members in programs such as Continuing Education, Child Studies, High School, and others. The college is governed by a five-member board of trustees appointed by the Governor of Washington state.

Advisory Committees

Some 500 individuals serve on more than 40 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 job opportunities for students.

The General Advisory Council advises college administration on career education programs as well as other instruction and services.

Our Mission

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

Bates Technical College 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.

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 that include:

- Dental and denturist clinics
- An auto body and fender shop
- A child care center
- A full-service cafeteria and coffee shop
- An auto service facility and automotive parts/accessories store
- A 10-chair barber shop
- A hearing clinic
- Fully-operational machine, sheet metal, and cabinet shops

College Website

www.bates.ctc.edu

Bates Technical College maintains a website on the Internet. Information is available regarding academic programs, admission requirements, campus locations, student services, career development, and more. From this web site, current students can perform many functions:

- View current class schedules
- Register for classes
- Access information on campus safety, voter registration and other important issues
- Check grades
- Use career services
- Keep current on clubs, activities, and other student services
- Apply for degrees and/or diplomas
- Register for commencement ceremonies

Diverse Population

Our students and staff are 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 school for a career change or to update job 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.

About Our College

Accreditation

www.nwccu.org

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

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

The information in the Course Catalog is accurate as of September 2016 and contains information relating to the 2016-17 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/SAA) for enrollment of those eligible to receive benefits under Title 38 and Title 10, USC.

Notice of Non-Discrimination

Bates Technical College reaffirms its policy of equal opportunity and 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 in accordance with college policy and applicable federal and state statutes and regulations. Inquiries regarding Bates' non-discriminatory policies, including Title IX and ADA, should be directed to: For student matters, contact Lin Zhou, Vice President of Institutional Effectiveness and Student Success, at 253.680.7105 or lzhou@bates.ctc.edu. For employee matters, contact Gary Nilsson, Director of Human Resources, at 253.680.7180 or gnilsson@bates.ctc.edu. If you need assistance due to sensory impairment or disability, contact the Disability Support Services Coordinator at 253.680.7010.

Gainful Employment Disclosure

For important information about the educational debt, earnings, and completion rates of students who attended these programs, please visit www.bates.ctc.edu/gainfulemployment.

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

베이츠 기술 대학의 비 차별 통지는 영어, 한국어, 중국어, 러시아어, 스페인어 로 보실수 있읍니다. 만약 당신이 이 비차별 통지내용을 위의 상기한 나라의 언어로 원하시면, 인사과 부사장님께 전화로 253.680.7180 아니면 이멜일 hr@bates.ctc.edu 로 요청하시길를 바랍니다.

Chinese

贝茨技术学院现提供英语，韩语，汉语，俄语及 西班牙语版的《无歧视通知》。如果你想得到上述任何一种语言的知的复印件，请到本校人事部申请领取。可通过电话或电子邮件联络。电话:253.680.7180
电邮地址: hr@bates.ctc.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@bates.ctc.edu.

Spanish

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

Frequently Asked Questions

When can I start?

Students may enroll in courses during the first 10 instructional days of the quarter in which that program accepts students. If a program is full, a student may be placed on the priority list after paying a non-refundable registration fee. Some programs have prerequisites that must be met prior to entry.

Can I get help in choosing a career and program of study?

Our career advisors understand the importance of your career decision and will work with you to help match your strengths, interests, and abilities with appropriate educational choices. You may start your decision-making process by taking a self-inventory of what's important to you. Bates' assessment center offers Holland Code, College-Level Examination Program (CLEP), ACCUPLACER, PearsonVUE, and various Certiport tests. Testing services are available to students and the general public.

If you have questions or are uncertain about which program to choose, select an area of interest and attend a **Career Education Information Session**.
More information: 253.680.7002 or www.bates.ctc.edu/InformationSessions.

What's the difference between an application form and a registration form?

Application forms are used for admission to Bates Technical College. Applications may be submitted online. You must have an application on file in order to register for classes. Registration forms are used to register for specific courses.

Will I receive personal attention from instructors?

Yes! At Bates, students are with their program instructor from six to eight hours each day. Class sizes are limited to optimize individual attention.

Is Bates accredited?

Bates Technical College is accredited by the Northwest Commission on Colleges and Universities, an institutional accrediting body recognized by the Council for Higher Education Accreditation and the Secretary of the U.S. Department of Education. Read more on page 4.

Does Bates accept credits from other institutions?

Yes. Official transcripts must be sent in a sealed envelope to the attention of the transcript evaluator in the registrar's office. Electronic transcripts will also be accepted.

Is financial aid available?

Students are encouraged to contact our financial aid office for assistance, 253.680.7020, in determining financial aid eligibility. Students and their families don't need to be low income to qualify for some kinds of financial aid. We compare the difference between the cost of attending school and the student's Expected Family Contribution (EFC) number provided on the FAFSA to determine eligibility.

To learn more about the process, pick up a free information packet in the financial aid and student services offices. You must be registered in a degree or certificate program to receive federal financial aid. **It is recommended that students apply online for financial aid as early as possible.** Pre-qualification may take several weeks.

TO REGISTER FOR A CAREER EDUCATION PROGRAM

Degrees & Certificates

Degrees & Certificates

All degree and certificate options require a minimum cumulative grade point average (GPA) of at least a 2.0 to earn a credential. Individual programs may require a higher grade point average.

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.

Associate in Applied Science Degree

The Associate in Applied Science degree prepares graduates for the workforce, leading the graduate directly to employment in a specific occupation. Associate in Applied Science degree career education programs have general education requirements. Students must complete college-level credits in communications, human relations and mathematics. This degree is not generally transferable to four-year institutions, though, in some cases, articulation agreements with specific institutions enable transfer. Career advisors can provide more information regarding transfer opportunitites with specfific programs.

Associate in Applied Science - T

The Associate of Applied Science-T degree provides students in specifically identified career education programs with pathways to further educational opportunities through articulation (transferable) agreements with baccalaureate institutions. Completion requirements generally include no less than 20 college-level general education credits for courses generally accepted in transfer, and comprised of five credits each of English composition, mathematics, and social science, humanities or science.

Associate in Applied Science in Apprenticeship Studies

Former students may be eligible if requirements are met, and if they have spent at least two of the last three years employed within the technical specialty (such as supervisor, foreman, manager, inspector, or instructor). Completion requirements for this degree include:

- Documentation of completion of a Bates Technical College apprenticeship program that is at least three years (6,000 hours) in length.
- Completion of 20 college-level credits comprised of five credits each of communications, mathematics, human relations and humanities.

Certificate of Competency

This completion credential is designed specifically for non-licensed programs at least 45 credits in length. Completion requirements include:

- Completion of the minimum number of pre-college (90-level) and college-level program-specific credits.
- Completion of 15 pre-college level credits comprised of five credits each of English, mathematics and human relations.

Certificate of Training

Certificates of Training are awarded for specific occupational outcomes to students who successfully complete programs that are less than 45 credits in length.

Articulation Agreements

Bates has articulation agreements with many colleges and universities, including University of Washington Tacoma and The Evergreen State College. For more information, see career training program information or contact a career advisor.

Residency

Students must complete 30 credits relating to their credential at Bates. Active duty and former military service members must complete at least 25 percent of the credits relating to their credential at Bates.

Certifications & 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 employers that a person has successfully shown an understanding of the technical knowledge required in a chosen field.

Certifications include:

- Air Conditioning and Refrigeration Institute (ARI) Industry Competency Exam
  - Commercial Refrigeration
  - Light Commercial Heating and AC
  - Residential Heating and AC
- Automotive Service Excellence (ASE)
- Certified Dental Assistant (CDA)
- Certified Medical Transcriptionist (CMT)
- Certified Network Associate (CCNA)
- Cisco Cert Entry Networking Technician (CCENT)

Adobe

Adobe Certified Associate

- Dreamweaver
- Photoshop
- Illustrator

CompTIA

- A+
- Net+
- Security +
- Project +
- Electrical Engineering Technician (EET)
- Electronic Engineering Technician (EET)
- EPA 608 (DFC Refrigerants)
- Certified Fiber Optics Technician (FOA)
- Inter-Industry Conference on Auto Collision Repair (I-CAR)
- International Conference of Building Officials (ICBO)

Microsoft Corporation

- Certified Professional (MCP)
- Certified Systems Administrator (MCSA)
- Certified Systems Engineer (MCSE)
- Certified Information Technology Professional (MCITP)
- Certified Desktop Support Technician (MCDST)

Other

- Certification of Engineering
- Certified Electronic Technician (CET through ISCET)
- Certified Internet Web Professional (CIW)
- CIW User Interface Designer
- Mobile Electronics Certified Professional (MECP)
- Network Cabling Specialist (C-Tech)
- Network Cabling Systems (Leviton)
- National Institute for the Technicians (NICET)

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, II, 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

Post-secondary professional-technical certifications

- Washington Association of Building Officials (WABO)
- American Welding Society (AWS)
- Society of Broadcast Engineers (SBE)
- Certified Broadcast Technology (CBT)

Professional License Preparation

Students are encouraged to prepare and apply for the appropriate license for their profession prior to program completion.

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
- 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)

General Education

General Education Courses www.bates.ctc.edu/GeneralEd

General education (academic) courses provide students with pre-college (90-level) instruction, and college (100- and 200-level) instruction in academic areas such as biology, chemistry, mathematics, English, psychology, communications and human relations.

General education courses teach skills that apply to all areas of career education, and ensure that our 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 program 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. Transfer course numbers are listed on page 9.

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.

The current general education class schedule may be accessed at www.bates.ctc.edu/Registration.

Some 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

These can 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

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 several available general education courses may satisfy a particular degree requirement, however students should consider which of those courses best complements their degree program, check the future general education course schedules, and plan their registration accordingly.

Also, some general education courses are easier to transfer to other institutions. Students with educational goals beyond an associate degree should consider Common Courses, indicated by an "&" in the item number of general education courses.

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

GENERAL EDUCATION COURSES REQUIRED FOR A DEGREE				
General Education Preparation Prerequisite Selected for Program	**Computations/ Mathematics**	**Communications/ English**	**Human Relations**	**Maximum Number of General Education Courses Required for Degree**
Ready for 100-Level	**1** Course	**1** Course	**1** Course	**3** (See note 1.)
Ready for 90-Level	Up to **2** Additional Courses **MATH 92 and MATH 098*** or **MATH 096**	**1** Additional Course **ENGL 091* ENGL 090**	**0** None	**Up to 4** Additional at 90-level depending on COMPASS scores (See note 2.)
Ready for 80-Level	Up to **2** Additional Courses **MATH 087 MATH 086**	**1** Additional Courses **READ 089 or WRITE 085**	**0** None	**3** Additional at 80-level depending on COMPASS or CASAS scores

Notes:
1) Some AAS and AAS-T degrees require additional 100-level courses.
2) Some students may require only one 90-level MATH course.
* Successful completion of ENGL 091 or MATH 098 is a prerequisite for entry into 100-level English or math common course numbered college transfer courses.

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 III
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 Intro to Business
BUS& 201 Business Law
CMST& 102 Introduction to Mass Media
CMST& 152 Intercultural Communication
CMST& 210 Interpersonal Communications
CMST& 220 Public Speaking
CMST& 230 Small Group Communications
CS& 131 Computer Science I C++
CS& 141 Computer Science Java
CHEM& 121 General Chemistry
CHEM& 131 Introduction to Organic Chemistry
ECED& 105 Introduction to Early Child Education
ECED& 107 Health/Nutrition /Safety
ECED& 115 Child Development
ECED& 120 Practicum-Nurturing Relationships
ECED& 130 Guiding Behavior
ECED& 132 Infant Toddler Caregiving
ECED& 150 Child/Family/Community
ECED& 160 Curriculum Development
ECED& 170 Environment-Young Children
ECED& 180 Language/Literacy Development
ECED& 190 Observation/Assessment
ECON& 201 Micro Economics
ECON& 202 Macro Economics
ENGL& 101 English Composition I
ENGL& 102 Composition II
ENGL& 235 Technical Writing
MATH& 141 Precalculus I
MATH& 142 Precalculus II
MATH& 146 Introduction to Statistics
MATH& 151 Calculus I
MATH& 152 Calculus II
NUTR& 101 Introduction to Nutrition
SOC& 101 Introduction to Sociology
PSYC& 100 General Psychology
PSYC& 200 Lifespan Psychology

Adult Basic Education, Adult High School Completion, High School 21+, ESL/GED

Adult Basic Education (Basic Studies)
www.bates.ctc.edu/GeneralEd

Bates offers Adult Basic Education (ABE) classes and services in:

- Mathematics, reading, writing
- Educational planning
- GED preparation
- Adult high school completion
- HS 21+

ABE classes are intended to help students improve mathematics, reading, and writing skills whether or not they have a high school diploma.

Students register for basic studies to prepare for further general education courses, to complement career education, to prepare for General Education Development (GED) testing, and for personal growth. Day and evening classes are offered with weekly start dates. More information: 253.680.7274.

Basic Studies Educational Planning

Basic studies educational planning (BSEP) assists students in selecting appropriate basic studies classes.

Students take assessment tests and are then placed in classes appropriate for their skill level and personal educational goals.

Integrated Basic Education and Skills Training (I-BEST)
www.bates.ctc.edu/IBEST

I-BEST career education programs provide academic support for students working toward a college-level certificate and two-year degrees. More information: 253.680.7002.

Adult High School Completion High School 21+
www.bates.ctc.edu/HS21

Students 21 years of age and older may earn a high school diploma at Bates Technical College through completing coursework and by receiving credit for work-based and community learning experiences. More information: 253.680.7274.

Meet with an advisor to determine what needs to be completed to earn a high school diploma.

English	3 credits
Mathematics	3 credits
Science (Including 1 credit of laboratory sciences)	2 credits
Social Studies (Including study of the U.S. and Washington State constitutions)	2.5 credits
Art	1 credit
Occupational Education	1 credit
Health and Fitness	2 credits
Electives	5.5 credits

GED Test Preparation
www.bates.ctc.edu/Testing

Specialized classes assist students in preparing for the four General Education Development (GED) examinations. Day and evening classes are offered. More information: 253.680.7274.

How to Register (ABE/GED)

1. Call 253.680.7274 for orientation dates.
2. Attend an orientation session. At the orientation, you will take the assessment test and may register for classes.

Running Start & Technical High School

Running Start

www.bates.ctc.edu/HighSchool

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.

Approved college courses are tuition-free, but fees, supplies, books and other incidental expenses are the student's responsibility.

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 high school district to register in Running Start at Bates. Contact our Running Start advisor Dana McNutt, 253.680.7264, for information or to schedule an orientation session.

Technical High School

www.bates.ctc.edu/HighSchool

Bates Technical High School is available to students 16-20 years of age who have not yet earned a high school diploma. General Education Development (GED) completers are eligible to enroll in Bates Technical High School. Students may transfer to Bates' Technical High School from their current school district.

Students work toward a high school diploma and an Associate in Applied Science degree or certificate simultaneously. Individual graduation plans will vary depending on a student's choice of program.

Technical High School students pay a $30-50 quarterly registration fee, and may be responsible for other fees, uniform, equipment and supply expenses.

Technical High School Graduation Requirements*

For the class of 2016, 2017 and 2018:
Earn at least 20 high school credits, including:

English	4 credits
Mathematics	3 credits
Science	2 credits
Social Studies	3 credits
Art	1 credit
Occupational Education	1 credit
Health and Fitness	2 credits
Electives	5.5 credits

For the class of 2019 and beyond:
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.

2. Complete a culminating project and High School and Beyond Plan. Your high school advisor will help you plan each step to complete your high school graduation requirements.

3. 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.

Afternoon Technical High School

www.bates.ctc.edu/HighSchool

Since 2010, the Afternoon Technical High School at Bates' South Campus has provided area high school students the opportunity to enroll in specific career training programs while working simultaneously toward their high school diploma.

Afternoon high school career program offerings change frequently because of instructor availability. Please check with a high school advisor for a current roster of afternoon high school programs.

Afternoon Technical High School students take academic classes at South Campus prior to their career training course. Afternoon high school students who complete all their afternoon career program and academic classes may transfer into the full-time day program at the next available program entry point. More information: 253.680.7004 or www.bates.ctc.edu/HighSchool.

TO REGISTER FOR RUNNING START & TECHNICAL HIGH SCHOOL

1. Attend a Running Start or Technical High School orientation session (see www.bates.ctc.edu/HighSchool for current orientation schedule).
2. Complete your orientation assignment, complete application packet, take a college entrance or placement test, and obtain approval and transcripts from your previous high school.
3. Call the high school office 253.680.7004 to schedule a meeting with a high school advisor.
4. Meet with an advisor and complete an education plan, register, pay fees, and begin your classes.

Chapter Two • Extended Learning and other programs

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. More information: 253.680.7000.

Articulation Agreements with Industry

Bates Technical College has a 75-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. More information: 253.680.7402, www.bates.ctc.edu/Apprenticeship.

Apprenticeship Committees

www.bates.ctc.edu/Apprenticeship

Aerospace Joint Apprenticeship Committee (AJAC) Apprenticeship Committee
Roger Peters, Coordinator, 206.764.7940

Industrial Maintenance Mechanic Apprenticeship
Roger Peters, Coordinator, 206.764.7940

Operating Engineers Regional Training JATC
Ole Fjellstad, Training Director, 1.800.333.9752

Pacific NW Iron Workers & Employers Local #86 Apprenticeship Committee
Greg Christiansen, Coordinator, 206.244.2993

Pierce County Meat Cutters Apprenticeship Committee
Benny Rowland, Coordinator, 253.589.0367

Washington State Fire Fighters Joint Apprenticeship & Training Committee
Dave Myers, Coordinator, 253.318.1638

Western Washington Sheet Metal JATC
Eric Peterson, Training Administrator, 425.438.1406

Western Washington Operating Engineers Facilities Custodial Services Apprenticeship Committee
Christian Dube, Coordinator, 253.351.0184

Western Washington Stationary Engineers Apprenticeship Committee
Christian Dube, Coordinator, 253.351.0184

Manufacturing Academy

The Manufacturing Academy was created in a joint effort between Workforce Central, Bates Technical College and Aerospace Joint Apprenticeship Committee (AJAC) to provide 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, students actively search for a job utilizing all of the resources of both Workforce Central and AJAC.

The goal of this program is to build a workforce to fill industry need, and to provide long-term employment and career ladders for graduates within that industry. Employers participated in development of course content, ensuring it is relevant and meets industry need.

Graduates are hired directly by employers that support the program; resulting in a skilled pipeline of entry level workers to support the growing number of aerospace/manufacturing jobs.

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 CNC Machinist program at Bates Technical College.

Successful completion of the Manufacturing Academy satisfies the minimum requirements for entry into an aerospace apprenticeship.

Veterans may be eligible to use their post-911/GI Bill benefits for this program.

Articulation Agreements with Colleges and Universities

Please refer to page 6. 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 Intercollege 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 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.

WorkForce Contract Training

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

Extended Learning and other programs

Continuing Education

www.bates.ctc.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.bates.ctc.edu/ContinuingEd. Registration is available online, by phone, or in person at the South Campus. More information: 253.680.7402.

Distance Learning

Bates offers a variety of distance-learning options in career education, general education, and extended learning, including eLearning for Educators, teacher preparation, international education, and Child Studies.

Web-facilitated formats blend face-to-face delivery with distance learning as well as offerings where most or all of the content is delivered via distance learning. More information: 253.680.7294.

Teacher Preparation & Certification

www.bates.ctc.edu/TeacherPrep

Bates Technical College offers training to prepare individuals with business and industry experience for Career and Technical Education (CTE) teaching careers at the secondary level, grades 7-12. The Washington State professional Educator Standards Board has approved Bates to offer this route to CTE teacher certification. Call 253.680.7467 for more information.

- Our quality, competency-based education is flexible. Design a plan to meet your individual needs.
- Courses are offered on weeknights, weekends and via distance learning.
- Visit www.bates.ctc.edu/TeacherPrep for a current schedule. Or, call 253.680.7467 to learn more about the program, to register for classes, or for a transcript review.

General Educational Development (GED)

www.bates.ctc.edu/Testing

The General Educational Development (GED) test certifies achievement of a high school level of academic knowledge and skills. GED testing is available through Bates' Assessment/Testing Center. More information: 253.680.7030, www.bates.ctc.edu/testing. For information in preparing for the GED, please call 253.680.7274.

Industry Partnerships

www.bates.ctc.edu/Partnerships

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).

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 (PIUs) 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 PIUs awarded. Documentation provided to the student must be signed by the program administrator/manager.

Veterans

www.bates.ctc.edu/FinancialAid
www.bates.ctc.edu/Veterans

Veterans who want to use veterans' benefits to attend Bates must meet with the veterans certifying official located in student services.

Veterans Administration-funded students may participate in work-based learning experiences if they have completed in-residence at the college.

More information: 253.680.7529 or 680.7035, www.bates.ctc.edu/FinancialAid.

EXTENDED LEARNING • CHAPTER 2

Extended Learning and other programs

WorkFirst

Bates partners with the Department of Social and Health Services, Employment Security, Pierce County WorkSource, and community-based organizations to provide free job search, job placement, and work experience opportunities for individuals who receive Temporary Aid for Needy Families (TANF).

Training programs are designed by industry professionals to satisfy the specific needs of each career field. Job placement assistance is available upon successful completion of training.

Eligible WorkFirst participants may qualify for up to one year of full-time training in several high-demand fields. More information: 253.680.7347

Worker Retraining

www.bates.ctc.edu/WorkerRetraining

Worker Retraining funding provides unemployed and laid-off workers with immediate access to training, including:

- New job readiness programs for displaced workers
- New and expanded training spaces in high-wage, high demand careers
- An on-site Job Service Center that helps individuals find employment

More information: 253.680.7127, www.bates.ctc.edu/WorkerRetraining, or email retraining@bates.ctc.edu.

Child Studies

www.bates.ctc.edu/Family

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. More information: 253.680.7500, www.bates.ctc.edu/Family.

Child Development/Early Education Staff Training Program

This program is a cooperative effort between approximately 30 licensed child care centers and Bates Technical College. The program offers affiliation opportunities for licensed child care 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. More information: 253.680.7500.

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. More information: 253.680.7324

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. More information: 253.680.7500.

Love and Logic

Love allows children to grow through their mistakes, and logic allows them to learn how to live with the consequences of their choices with parental guidance and support. More information: 253.680.7500.

Parent/Infant/Toddler Programs

An eight-week series of classes in which parents with children (birth to two years) participate in educational, age-appropriate activities with an emphasis on making brain connections through movement and music. 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 child care 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. 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. More information: 253.680.7500.

Early Childhood Education Degree Program

www.bates.ctc.edu/EarlyEducation

This two-year degree program is offered both online and at the college's Downtown Campus. On-campus classes include lecture, discussion and hands-on learning. Students will prepare for roles as lead teachers, and program supervisors and directors. More information: 253.680.7322 or 253.680.7010.

Chapter Three • Student Services

Student Services

Advising

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 assist with:

- Placement test results and general education placement
- 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 are available to help with:

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

More information: 253.680.7002.

Associated Student Government (ASG)

www.bates.ctc.edu/ASG

Administration and faculty strongly support the ASG, helps in the promotion and development of student activities, and provides for direct student representation in establishing college polices.

The ASG is responsible for developing student life activities, the student activity budgets, and for representing student interests on college committees and councils.

In addition, the ASG manages the Phi Theta Kappa Honor Society, college level SkillsUSA, and student-led clubs. ASG officers hold regular meetings, host a monthly general assembly, meet with the college president regularly, and the ASG president provides a monthly report to the college's Board of Trustees.

All students are encouraged to attend monthly General Assembly meetings and student life events. Text @batesASG to 81010 to get text alerts for upcoming events.

Barber Shop

www.bates.ctc.edu/BarberShop

Students have access to the low-cost services of a 10-chair barber shop. All work is performed by students in the Barber program.

Campus Store and Online Bookstore

www.bates.ctc.edu/CampusStores

Bates has Barnes & Noble College campus stores at our Downtown and South Campus locations. In addition to textbooks, both stores carry 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. A list of required books, supplies, and equipment is available from program instructors. Go to www.bates.ctc.edu/CampusStores for more information.

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: www.bates.ctc.edu/CampusStores.

Career Education Information Sessions

www.bates.ctc.edu/InformationSessions

If you are uncertain about which program to choose, select an area of interest and attend a Career Education Information Session.

Child Care

Bates' child care 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.

Hours are 6:30 a.m.-5 p.m., Monday through Friday, 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.

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.

Dental Clinic

www.bates.ctc.edu/DentalClinic

Bates' Downtown Campus Dental Clinic is open from 8 a.m. - 2 p.m., Monday-Thursday, and is available to Bates students, their families and the general public, age 5 and older. Services provided include fillings, extractions, crown and bridge, and limited root canals. The clinic is not-for-profit, with patient fees designed to cover the cost of dental salaries and patient service materials. Assistants in the clinic are students completing training in dental assisting techniques, theory and application.

Payment is due at the time of service. DSHS with the CNP identifier is accepted. Private dental insurance is not accepted.

Operating hours may change due to instructional needs. For more information, call 253.680.7310.

Student Services

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: educational planning, career advising and exploration, assistance with financial aid forms and college applications, and student loan default. The EOC at Bates is located in Room A210, Downtown Campus. Call 253.680.7153 for more information.

Email Accounts for Students

www.bates.ctc.edu/StudentEmail

Registered career education students at Bates Technical College have a student email account provided as a service from Bates.

Emergency Closures/School Delays

www.bates.ctc.edu/Weather

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

- Weather and schedule information line, 253.680.7060
- College website, www.bates.ctc.edu/Weather
- Official college social media channels
- Puget Sound radio and television stations through the Public Schools Emergency Communication System, and on their website, www.flashalert.net.

Financial Aid

www.bates.ctc.edu/FinancialAid

See page 23 for financial aid eligibility standards and application procedures.
More information: 253.680.7020.

Food/Dining Service

www.bates.ctc.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. Snacks are available in the bookstores; vending machines are located on campus.

Hearing Clinic

www.bates.ctc.edu/HearingClinic

Bates operates a full service hearing clinic at the Downtown Campus in Room C214. Students and the general public have access to free hearing assessments and hearing aid checks. Hearing aids are sold and serviced for a fee. More information: 253.680.7362.

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. Students who do not have accident insurance are strongly encouraged to take advantage of this reduced-cost option. Forms are available in the advising center, or visit www.summitamerica-ins.com.

Job Placement

Job placement assistance is generally provided by program instructors who have close ties with advisory committees and industry representatives.

Library

www.bates.ctc.edu/Library

Library facilities at Central/Mohler, Downtown, and South Campus locations provide value in service to students, staff, and faculty by supporting positive learning outcomes in information literacy and critical thinking. Resources selected to enhance learning include an extensive collection of print books, powerful academic databases, eBooks, DVDs, and streaming videos to serve the diverse information needs of our college community. Skilled professional library staff and a certified academic librarian are ready to provide expert help, face-to-face and online.
Email: Library@bates.ctc.edu.
Call: 253.680.7220 (Downtown Campus) 253.680.7550 (South Campus).
Access statewide 24/7 online librarian chat service: www.bates.ctc.edu/LibrarianChat

Student Services

National Voter Registration Act

Voter registration forms are available in the registration office in conformance of Program Participation Requirement, Section 487(a)20 U.S.C. 1094(a).

Parking

www.bates.ctc.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 from Campus Public Safety. The parking permit application is available on the website. You can obtain your permit from Campus Public Safety. www.bates.ctc.edu/Safety.

Parking Fines:

- No valid permit displayed: $25
- Parking in area not authorized by permit: $25
- *Blocking or obstructing traffi c or impeding college operations: $50
- Parking in reserved staff space without authorization: $50
- Handicapped parking violation (RCW 46.16.381): $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 college's Health and Safety Manager within five business days of receipt of the citation. If denied, the decision may be appealed to the Parking Advisory Committee for review. All decisions made by the parking advisory committee shall be final. Repeated or continued violations may result in having parking privileges revoked and/or vehicle impoundment at owner's expense.

Registration/College Calendar www.calendarwiz.com/BTC

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

Safety

www.bates.ctc.edu/Safety

Campus public safety officers provide escorts for students and staff; 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.bates.ctc.edu/Safety. Downtown, Central/Mohler, South Campus, call 253.680.7111.

MyBates

www.bates.ctc.edu/MyBates

MyBates allows students to view and print an unofficial copy of their transcript, a form to request an official transcript, to find out which required financial aid documents have not been received, and if and when the college has sent an award letter.

Student Diversity Center

www.bates.ctc.edu/Diversity

The Downtown Campus Student Diversity Center advocates a college environment in which diverse backgrounds are respected and valued. Located in C301, the center is a safe space where discussions exist in an atmosphere of respect and trust, while providing an environment to learn about the diverse nature of our community. The center offers meeting spaces, computer workstations, printing, a conversation corner, and diversity-related materials. Call 253.680.7178 or visit www.bates.ctc.edu/Diversity.

Tuition Refund Policy

State-funded Instruction

A student who has paid tuition before the quarter starts but is unable to attend the class may receive a full tuition refund. After the first day of class, Bates grants refunds as follows:

- From the 1st to the 5th calendar day of class – 80%
- From the 6th day to the 15th day calendar day – 40%
- After the 15th calendar day there is no refund

If the duration of a class is other than ten weeks, the refund is calculated based on the equivalent percentage of time.

The general refund policy applies to all students in state-supported programs. It is the student's responsibility to complete a withdrawal form and submit it the registration office. The date the withdrawal is received will be used for calculating refunds.

- Refunds will not be granted for students withdrawn for disciplinary reasons.
- Students called for military active duty will be granted a refund of tuition and laboratory/supply/computer use fees paid for the current payment period, subject to the rules and regulations of their respective funding sources. Presentation of written confirmation is required.

The general 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 must be requested in writing by the student or the funding agency administrator. Refunds for special programs will be made directly to the funding agency administrator.

Student Services

Tuition Refund Policy—Financial Aid Recipients

Financial aid recipients are subject to the Return of Title IV Aid regulations. as stated in this catalog. (See page 23.)

Tuition Refund Policy—Self-Support Classes

100%	If college cancels class
100%	Withdrawal on or before one business day prior to 1st class
0%	Student registers, but does not attend
0%	Student withdraws after 1st class

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

Tuition, fees and other program costs

www.bates.ctc.edu/Tuition

BATES TECHNICAL COLLEGE FY 2017-18

Quarterly Resident Tuition Schedule

# of Credits	Tuition	Total Fees Excluding Lab/Special Fees	Total
1	$ 101.51	$ 21.00	$ 122.51
2	$ 203.02	$ 42.00	$ 245.02
3	$ 304.53	$ 63.00	$ 367.53
4	$ 406.04	$ 84.00	$ 490.04
5	$ 507.55	$ 105.00	$ 612.55
6	$ 609.06	$ 126.00	$ 735.06
7	$ 710.57	$ 147.00	$ 857.57
8	$ 812.08	$ 168.00	$ 980.08
9	$ 913.59	$ 189.00	$ 1,102.59
10	$ 1,015.10	$ 210.00	$ 1,225.10
11	$ 1,060.89	$ 231.00	$ 1,291.89
12	$ 1,106.68	$ 252.00	$ 1,358.68
13	$ 1,152.47	$ 273.00	$ 1,425.47
14	$ 1,198.26	$ 294.00	$ 1,492.26
15	$ 1,244.05	$ 315.00	$ 1,559.05
16	$ 1,289.84	$ 336.00	$ 1,625.84
17	$ 1,335.63	$ 357.00	$ 1,692.63
18	$ 1,381.42	$ 378.00	$ 1,759.42
19	$ 1,475.78	$ 399.00	$ 1,874.78
20	$ 1,570.14	$ 420.00	$ 1,990.14
21	$ 1,664.50	$ 441.00	$ 2,105.50
22	$ 1,758.86	$ 462.00	$ 2,220.86
23	$ 1,853.22	$ 483.00	$ 2,336.22
24	$ 1,947.58	$ 504.00	$ 2,451.58
25	$ 2,041.94	$ 525.00	$ 2,566.94
26	$ 2,136.30	$ 546.00	$ 2,682.30
27	$ 2,230.66	$ 567.00	$ 2,797.66
28	$ 2,325.02	$ 588.00	$ 2,913.02
29	$ 2,419.38	$ 609.00	$ 3,028.38

Tutoring

www.bates.ctc.edu/Tutoring

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 the ACCUPLACER or GED tests.

Disability Support Services and Accommodation

Disability Support Services

www.bates.ctc.edu/DisabilitySupportServices

The primary focus of Disability Support Services (DSS) is to assure nondiscrimination on the basis of disability.

Through DSS, qualified persons with disabilities can address their concerns regarding attitudinal or procedural barriers encountered, as well as any need for academic adjustments and/or auxiliary aids to assure equal access. DSS will provide information and auxiliary aids or services, serving as a resource to the campus community while striving to make Bates Technical College both an accessible and hospitable place for persons with disabilities to enjoy full and equal participation. We work with individuals who have physical, learning and/or mental disabilities, are academically or economically disadvantaged, limited English speaking, single parents, ex-offenders, displaced homemakers, and gender equality programs.

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 assure 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.

Attendance

Students are expected to attend all of their scheduled classes. It is the instructor who 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.

Student Rights

You have a right to services and reasonable accommodations that allow you to compete on an equal basis as long as you meet the basic requirement to perform the activities of the program.

Equal Access

No qualified individual with a disability shall, by reason 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 accommodations 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.

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 M211.

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.

Registration & Attendance Policies

Full-time Students

Full-time students attend classes from six to eight hours each school day, depending on the program. The academic year is 11 months, with four, 10-week quarters: fall, winter, spring and summer. Students are expected to attend class during all four quarters of the academic year.

Most classes are held from approximately 7:15 a.m. to 3 p.m., Monday through Friday. Students may register any day the college is open, pay a non-refundable application fee, and begin classes at the next available entry point. If a program is full, a student may be placed on a waitlist after the application fee has been paid.

Health & Medical 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. Some of these programs have specific start dates. Contact the Admissions Office for more information.

Students with Disabilities

Qualified individuals with disabilities interested in furthering their education are encouraged to use the services of Bates' Disability Support Services (DSS). Students requesting special accommodation(s) should contact DSS.

More information:
253.680.7012, Relay 711, email: dss@bates.ctc.edu.
(See page 19.)

Enrollment/Registration Policy

Students must enroll by the tenth day of each quarter. Persons over 16 may register subject to the conditions of Bates' enrollment/registration policy.

If you are undecided about your program of study, consider attending a Career Education Information Session or contact the Admissions Office. More information: 253.680.7002, www.bates.ctc.edu/InformationSessions.

Admissions Testing

All students registering in a career education program are required to take the placement test or provide official transcripts. Contact the Assessment/Testing Center at 253.680.7030.

Students registering in general education courses, English, human relations and mathematics, must have the prerequisite placement scores in reading, writing, pre-algebra, algebra or college algebra test levels. Students scoring below those levels are required to register in developmental or basic studies classes to prepare for 100-level courses.

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.

Withdrawals

Students must self-withdraw in the Registration Office. Students unable to present themselves to the Registration Office must submit their withdrawal in writing. The tuition refund policy will be effective when the withdrawal paperwork is received by the Registration Office.

School Delays and Closures

www.bates.ctc.edu/Weather

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

- Weather and schedule information line, 253.680.7060
- College website www.bates.ctc.edu/Weather
- Official college social media channels
- Puget Sound radio and television stations through the Public Schools Emergency Communication System, and on their website, www.flashalert.net.

If classes are canceled, students and faculty 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.

International Student Information

International Students

www.bates.ctc.edu/International

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

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

NOTE: Bates is an approved college for Saudi Arabian Cultural Mission (SACM) scholarship recipients.

International Student Services

- Registration assistance and advising
- International student orientation
- Access to computer labs and library resources
- Access to Bates' Diversity Center and activities through the college's Associated Student Government

International students should:

- Show sufficient financial resources to pay college and living expenses for 9 months.

Once a student is admitted and arrives at Bates, they are given a ACCUPLACER test. This test determines reading, listening, writing and mathematics levels so that we can place them in the appropriate level of English and mathematics classes.

Obtain an admission application online at www.bates.ctc.edu/International or via email: International@bates.ctc.edu.

Bates Technical College issues F-1 and M-1 Certificates of Eligibility and I-20 forms required for the issuance of an F-1 Visa. Please take the I-20 form to the U. S. Consulate in your country to apply for a student visa.

Mail the completed admission application and forms to:

International Student Services
Bates Technical College
1101 S. Yakima Ave., Room A123
Tacoma, WA 98405-4895, USA

Or, scan and email the application and forms to international@bates.ctc.edu.

When Bates Technical College receives the required admission application, application fee, and forms, the college will determine your eligibility for enrollment at Bates.

More information: 253.680.7184, email international@bates.ctc.edu or visit www.bates.ctc.edu/International.

Tuition and Expenses for International Students

The cost to attend Bates Technical College, including books, supplies, tuition, and living expenses is approximately $18,600 (US) annual expenses. This does not include the cost of travel to or from the United States. The college provides limited scholarships for which international students can apply.

For a schedule of international tuition and fees, www.bates.ctc.edu/International.

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. More information: 253.680.7184. www.bates.ctc.edu/International.

Transcripts, Transfer of Credits

Transcripts

www.bates.ctc.edu/Transcripts

Official transcripts for courses completed at Bates Technical College are available through the Registration Office at $5 per copy.

A transcript request form may be obtained by mail or online at www.bates.ctc.edu/Transcripts. Transcript requests must be submitted in writing and signed by the student. Telephone requests are not accepted, and transcripts will not be released without the student's signature.

A transcript may be requested via written request containing the student's name at the time of attendance, student identification number (SID), and dates of attendance. Transcripts are released provided that all outstanding financial obligations to the college have been satisfied.

Unofficial transcripts may be printed from the college website at www.bates.ctc.edu/Transcripts.

High school transcripts may be requested from Bates' Technical High School office. More information: 253.680.7004.

Transfer of Credits

Credits, qualifications, or requirements waived by one college may not necessarily be waived by another college. Those decisions are made at each institution. Upon student application, each college evaluates and, if appropriate, transfers recognized credits which apply to the area of study for which the student has applied. Students may earn credit for prior learning or submit a course challenge based on established procedures. Military transcripts will be evaluated based on American Council on Education (ACE) recommendations. The enrolling college determines transfer credits earned elsewhere.

Students may request that prior credits be transferred to satisfy general education requirements. Students must complete a Request for Evaluation in the Registration Office.

Students must specifically request official transcripts be forwarded directly to the Registration Office from accredited post-secondary institutions or military service.

Courses will be evaluated, and accepted transfer courses and credits will be reported on the transcript, which students may view online at www.bates.ctc.edu/Transcripts.

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.

College-Level Examination Program

www.bates.ctc.edu/Testing

The College-Level Examination Program (CLEP) is the most widely accepted credit-by-examination program in the country. Through CLEP, students can:

- Demonstrate their knowledge in a subject area to earn exemption from taking introductory college courses;
- Show their level of competency in a subject to determine placement; and
- Accumulate credit toward a degree by demonstrating knowledge they have gained independently.

There are no eligibility requirements or prerequisites to take a CLEP exam. More information: 253.680.7030.

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. Contact the registrar at the college to which you wish to send transcripts for evaluation.

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.

Veterans Administration and other program-funded students may participate in work-based learning experiences only if it is completed in-residence at the college, with permission of the funding agency. More information: 253.680.7529 or 680.7035.

Financial Aid

Financial Aid

www.bates.ctc.edu/FinancialAid

Financial aid is available for eligible students. Students and their families need not be low-income to qualify for some kinds of financial aid. Students must apply for financial aid to be eligible for federal assistance.

Even if receiving financial assistance from agency sources (L&I, VA, DVR, WorkSource, WorkFirst), students may be eligible for additional grant aid from state and federal financial aid sources to attend school.

Eligibility is determined by comparing the difference between the cost of attending school and the student's Expected Family Contribution (EFC) number provided on the FAFSA.

Students are encouraged to apply for financial aid as early as possible since pre-qualification may take up to eight weeks from the application submission date. Students who apply for financial aid give voluntary consent to use the college's electronic processes. The student must notify the financial aid office in writing if they choose not to use Bates' electronic processes. Electronic financial aid award notifications begin in July.

Financial aid is intended to supplement, not replace, a person's resources. If combined resources are not sufficient to cover expenses, you may be eligible for financial aid in the form of grants, scholarships, low-interest loans, or work study employment.

Information submitted on the financial aid form determines eligibility for grants, scholarships, work study, and low-interest loans. Students should plan to use personal resources to buy books and supplies prior to their first financial aid disbursement.

BankMobile

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

Eligibility for Financial Aid

To be eligible for financial aid, a student must:

- Attend a financial aid-eligible Bates program to obtain a degree or certificate
- Be a U.S. citizen or eligible non-citizen
- Make satisfactory progress in a program of study, as defined by the institution's satisfactory progress criteria
- Not be in default on any previous student loans or owe a refund on any grant
- Be registered for the draft with Selective Service, if required by law
- Be a high school graduate, or a GED completer

Students entering Bates with a bachelor's degree are limited to applying for loans, scholarships, and work study assistance.

Satisfactory Progress

Any student receiving financial aid must make Pace of Progression and receive a quarterly GPA of 2.0, or "C", or higher. They must also maintain the minimum required credits to receive a financial aid disbursement.

Students who receive financial aid will be placed on warning or suspension if they do not maintain satisfactory progress. Students are still eligible for a financial aid disbursement while on warning status. Students on suspension will not receive financial aid. If a student is suspended from aid, they have a right to appeal their status. Students should continue to attend college courses while their appeal is being considered. Refer to the Satisfactory Academic Progress policy for details.

Withdrawals
Students must self-withdraw in the Registration Office. Students unable to present themselves to the Registration Office must submit their withdrawal in writing. The tuition refund policy will be effective when the withdrawal paperwork is recieved by the Registration Office.

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 www.bates.ctc/MyBates for a full description of Return of Title Four Funds and/or inquire at the Financial Aid Office.

Students who are in Return of Title IV status will receive an overpayment letter and will be ineligible for further Title IV and state aid, until the funds are repaid. The calculation is based on the last recorded day of attendance for the student. (Sample calculations are available upon request in the Financial Aid office).

To Apply for Financial Aid

1. Complete and submit the Free Application For Student Aid (FAFSA) as soon as possible. Get forms in the financial aid and student services offices, and online at www.bates.ctc.edu/FinancialAid or www.fafsa.ed.gov.

2. Complete a Financial Aid Data Sheet and return it to the financial aid office.

3. Stay in touch with the financial aid office to ensure that they have the correct information to complete your file.

4. Remember that you must reapply for financial aid each year. Electronic notification of financial aid awards begin in July each year.

Grants, Loans & Scholarships

Our Financial Aid Office can answer your questions about grants, loans and employment programs that can help students pay for their education.
More information: 253.680.7020 or www.bates.ctc.edu/FinancialAid.

Grants

Federal Pell Grant*	$606 to $5,920/year	For undergraduate students (federal)
Federal Supplemental*	$100 to $300/year	For undergraduate students (federal)
WA State Need Grant*	Up to $3,622 + $906 daycare allowance	For undergraduate students (state)
3.5 Percent Fund*	Amount varies	For full- & part-time students (institutional)

**Grant amounts and the availability of funds are subject to change*

Loan Programs
Bates participates in the William D. Ford Direct Loan program. For more information, go to www.bates.ctc.edu/FinancialAid.

Federal	Maximum 1st year: $3,500	Subsidized: Deferred repayment and fixed interest rates
	Maximum 2nd year: $4,500	Subsidized: Deferred repayment and fixed interest rates
	Amount varies	Unsubsidized:Deferred repayment and fixed interest rates
Federal Plus Loan	Maximum loan can cover cost of education; a non-need based program for parents of undergraduate dependent students with immediate repayment fixed interest rates	

Employment Programs

Federal and State Work Study	$500 to $6,000/year	On- and off-campus employment opportunities

SALT
www.saltmoney.org or www.bates.ctc.edu/SALT
Part of an ongoing commitment to financial literacy, SALT offers valuable tools and resources, including budgeting, money-saving discounts, and counseling.

SCHOLARSHIPS

The Bates Technical College Foundation offers scholarships to new and current students every quarter. Scholarship offerings vary with awards ranging from $100 to $1,250 per quarter. Applications are available online at www.bates.ctc.edu/Foundation. To request information by email, please contact scholarships@bates.ctc.edu.

1. Who is eligible to apply for scholarships through the Bates Technical College Foundation?
All Bates students registered in degree and certificate programs are eligible to apply for scholarships. Some scholarships are open to all students in any program, while others are limited to specific programs. Please read each scholarship announcement to determine eligibility.

2. 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. However, funds received as a scholarship 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.

3. 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.

4. What is involved in the application process?
The entire scholarship application is filled out online at https://batesfoundation.awardspring.com/. The application consists of filling out a brief biographical and financial section, and several short-answer essay questions. Applicants also submit an unofficial transcript and a letter of recommendation. Students must be in good academic standing to be considered for a scholarship.

5. Can I use my scholarship for living expenses such as rent, utilities and childcare?
No. With the exception of a few scholarships designated for childcare, scholarships through the foundation may only be used towards tuition, books, tools or supplies.
Learn more at www.bates.ctc.edu/Foundation.

Grading System

Grading Procedures

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

1. 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.

2. 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.

3. Reporting:

- Numerical grades earned by students will be reported for each course at the end of the quarter using a scale from 4.0 to 0.7, 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
0.9-0.7	D-
0.0	N/C

N/C-No Credit: Counted in GPA
S: Satisfactory completion of a pass/fail course (not factored in GPA)
U: Unsatisfactory completion of a pass/fail course (not factored in GPA)
W: Withdrawal - not counted in GPA
IC: Incomplete

4. Withdrawals (W): Students will be allowed to self-withdraw from courses in accordance with college procedures.

5. Incomplete marks (IC)
a. 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.
b. 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 timeframe.
c. The student need not re-register nor pay additional tuition in the following quarter for the individual course in which an IC is granted.
d. 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.

Academic Suspension

Students who do not meet the satisfactory academic progress standard of a 2.0 GPA for three consecutive terms will be suspended for the immediately succeeding quarter for the duration of that quarter.

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 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.

Satisfactory Academic Progress

Bates Technical College Academic Deficiency Policy

Please note that Federal Financial Aid has separate policies and procedures pertaining to Satisfactory Academic Progress. 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 Deficiency

Any student who receives less than a 2.0 quarterly GPA will be notified that satisfactory academic progress is not met at the end of a given quarter. Notification of academic deficiency (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 deficiency. 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 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.

Reentry after Academic Suspension
After one quarter of suspension, students may petition to reenter. Students must first meet with a Career Training Specialist for a readiness assessment. Career Training Specialists may direct students to do the following things, but are not limited to the list below:

- Attend an academic intervention session
- Meet with the Director of Enrollment 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 in order or they will return to Academic Suspension. Students reentering from a second Academic Suspension must meet with the Vice President of Institutional Effectiveness and Student Success.

Academic Appeal

Students may follow the process laid out in the student handbook if they wish to appeal their academic standing. www.bates.ctc.edu/current-students

Student Rights & Responsibilities

WAC Student Rights & 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 receive a 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 at http://apps.leg.wa.gov/WAC/default.aspx?dispo=true&cite=132E-120

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:
(1) The right to inspect and review the student's education records within 45 days of the day the college receives a request for access;
(2) The right to request the amendment of information contained in the student's education records that the student believes is inaccurate or misleading;
(3) 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;
(4) 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. Visit www.bates.ctc.edu/MyBates.

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 registered full time, first time entering college, and degree or certificate students. Title II 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 staff and students, and to investigating and resolving promptly any complaints of sexual harassment. If a student feels his/her rights have been violated, he/she should contact Student Services or Human Resources.

Chapter Four • Degree and Certificate Programs

Accounting

www.bates.ctc.edu/Accounting

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.

Associate in Applied Science: 90 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
ENGL&	101	English Composition I	5
100+	Level	Human Relations[1]	5
100+	Level	Humanities [2]	5
100+	Level	Mathematics [3]	5

REQUIRED ACCOUNTING COURSEWORK			CREDITS
ACCT&	201	Principles of Accounting I[7]	5
ACCT&	202	Principles of Accounting II	5
ACCT&	203	Principles of Accounting III	5
ACCT	205	Excel for Accounting	5
ACCT	207	QuickBooks	5
ACCT	220	Payroll Accounting	5
ACCT	225	Federal Income Tax	5
ACCT	230	Governmental Accounting	5
ACCT	235	Intermediate Accounting Topics	5

REQUIRED BUSINESS COURSEWORK			CREDITS
BUS&	101	Intro to Business	5
BUS&	201	Business Law	5
BA	217	Business Communication	5
ECON&	201	Microeconomics	5
INFO	101	Computer Application Essentials	5

[1]recommend HREL 111 Interviewing/Promoting
[2]recommend CMST& 210 Interpersonal Communications
[3]recommended MATH& 146 Statistics

Certificate of Competency: 45 Credits

Bookkeeping

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations[4]	5
90+	Level	Humanities[5]	5
90+	Level	Mathematics[6]	5

REQUIRED ACCOUNTING COURSEWORK			CREDITS
ACCT&	201	Principles of Accounting I	5
ACCT&	202	Principles of Accounting II	5
ACCT	205	Excel for Accounting	5
ACCT	207	QuickBooks	5
ACCT	220	Payroll Accounting	5

REQUIRED BUSINESS COURSEWORK			CREDITS
INFO	101	Computer Application Essentials	5

[4]recommend HREL 111 Interviewing/Promoting
[5]recommend ENGL 091 Integrated Reading & Writing II
[6]recommended MATH 092 Elementary Algebra
[7]MATH 092 must be completed/test out prior to program start

Administrative Medical Assistant

www.bates.ctc.edu/AMA

Students prepare for careers as integral members of a health care team in an outpatient setting. Competency-based activities in the program provide extensive hands-on practice for students in the use of computer application skills to create and handle medical information. Medical transcription, electronic health records, medical terminology, patient administrative services, and professional ethics are presented with emphasis on the billing procedures of the insurance industry. 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.

Note: Students must possess basic keyboarding/word processing skills prior to enrollment in the program.

Applicants must:
1. Possess basic keyboarding/word processing skills prior to enrollment in the program, and
2. Pass a clear national criminal background check covering Washington state.

Faculty
Mary Ann Keith

Associate in Applied Science: 98-99 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
100+Level	Human Relations	5
100+Level	Communications	5
100+Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AMA	110	Computer Basics	1
AMA	111	Introduction to Word Processing	3
AMA	112	Fundamentals of Medical Terminology	4
AMA	113	Business Communications	5
AMA	114	Introduction to the Health Care Profession	5
AMA	115	Digital Medical Transcription	3
AMA	116	Medical Office Procedures	3
AMA	117	Beginning Medical Terminology	4
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
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	126	Advanced Administrative Medical Concepts	4
AMA	127	Medical Insurance	4
AMA	128	Advanced Medical Terminology	4
AMA	129	Medical Coding Applications	4
AMA	130	Medical Office Supervision and Management	3
AMA	131	Interview Techniques	3
AMA	133	HIV Prevention Education	1
AMA	134	Healthcare Credentialing	2
AMA	135	Practical Applications	5
		and	
AMA	296	Work-based Learning Experience AND	2
AMA	297	Work-based Learning Seminar	1
		or	
AMA	298	Work-Based Learning – No Seminar	2
		or	
AMA	132	Phlebotomy	3

Certificate of Competency: 76 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
90+ Level	Human Relations	5
90+ Level	Communications	5
90+ Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AMA	110	Computer Basics	1
AMA	111	Introduction to Word Processing	3
AMA	112	Fundamentals of Medical Terminology	4
AMA	113	Business Communications	5
AMA	114	Introduction to the Health Care Profession	5
AMA	115	Digital Medical Transcription	3
AMA	116	Medical Office Procedures	3
AMA	117	Beginning Medical Terminology	4
AMA	119	Advanced Medical Office Procedures	3
AMA	118	Administrative Medical Concepts	4
AMA	120	Introduction to Spreadsheets	3
AMA	121	Intermediate Medical Terminology	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	4
AMA	128	Advanced Medical Terminology	4

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Administrative Office Assistant

www.bates.ctc.edu/AOA

Prepare for a career as an office or administrative assistant, or a variety of office support positions. Students learn fundamental skills in Microsoft Word, Excel, Outlook, PowerPoint, Access, business writing and office procedures. Students receive practical experience in several areas, including grammar, keyboarding, employment preparation, and often gain work-based learning experience in temporary internships at local businesses or in residence at the college. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

FACULTY
Sharon Netter

Associate in Applied Science: 93 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AOA	102	Professional Office Procedures	5
AOA	103	Telecommunications	1
AOA	105	Keyboarding I	5
AOA	106	MS Windows	1
AOA	108	Records Management	4
AOA	109	Business Ethics	2
AOA	110	MS Word I	5
AOA	111	MS Outlook	2
AOA	112	Business Grammar I	1
AOA	120	Keyboarding II	5
AOA	121	MS Word II	5
AOA	123	Business Documentation	5
AOA	124	Business Presentations	3
AOA	126	Business Grammar II	1
AOA	132	Business Grammar III	1
AOA	240	Capstone Project	2
AOA	202	Business Grammar IV	1
AOA	203	MS Excel I	5
AOA	204	MS PowerPoint	3
AOA	205	MS Access I	3
AOA	206	Voice Recognition Software	2
AOA	207	Business Grammar V	1
AOA	217	Business Grammar Vi	1
		Or	
AOA	223	MS Excel II	5
AOA	224	Desktop Publishing	3
AOA	225	MS Access II	3
AOA	234	Employment Preparation	1
AOA	291	Practical Applications*	2

*This course may be substituted with a work-based learning component

Certificate of Competency: 59 Credits

BASIC OFFICE SUPPORT

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AOA	102	Professional Office Procedures	5
AOA	103	Telecommunications	1
AOA	105	Keyboarding I	5
AOA	106	MS Windows	1
AOA	108	Records Management	4
AOA	109	Business Ethics	2
AOA	110	MS Word I	5
AOA	111	MS Outlook	2
AOA	120	Keyboarding II	5
AOA	126	Business Grammar I	1
AOA	123	Business Documentation	5
AOA	126	Business Grammar II	1
AOA	132	Business Grammar III	1
AOA	202	Business Grammar IV	1
AOA	203	MS Excel I	5

Certificate of Training: 26 Credits

OFFICE FUNDAMENTALS

REQUIRED COURSEWORK			CREDITS
AOA	102	Professional Office Procedures	5
AOA	105	Keyboarding I	5
AOA	106	MS Windows	1
AOA	110	MS Word I	5
AOA	111	MS Outlook	2
AOA	112	Grammar I	1
AOA	126	Grammar II	1
AOA	203	MS Excel I	5
AOA	234	Employment Preparation	1

Architectural Woodworking/Cabinet Making Technology

www.bates.ctc.edu/Woodworking

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.

FACULTY
Steve Dziedziak

Associate in Applied Science: 112 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+ Level		Human Relations	5
100+ Level		Communication	5
100+ Level		Mathematics	5

REQUIRED COURSEWORK			CREDITS
ARWC	101	Introduction to Cabinetmaking	3
ARWC	102	Safety Principles	4
ARWC	103	Cabinetry Blueprints/Plans	4
ARWC	104	Materials	2
ARWC	105	Machine Tools I	4
ARWC	106	Machine Tools II	4
ARWC	107	Machine Tools \CNC	3
ARWC	108	Portable Power Tools	3
ARWC	109	Hand Tools	3
ARWC	110	Basic Cabinet Joinery	4
ARWC	111	Tool Maintenance/Sharpening	3
ARWC	112	Cabinetmaking/ Face Frame Construction I	4
ARWC	113	Cabinetmaking/ Face Frame Construction II	4
ARWC	114	Cabinetmaking/32mm System	3
ARWC	115	Finishing Methods I	3
ARWC	116	Drawers and Doors	2
ARWC	117	Laminates / Countertops /Solid Surface	3
ARWC	118	Occupational Math	3
ARWC	119	Jigs and Fixtures	2
ARWC	120	Cabinetmaking/Commercial Construction	3
ARWC	201	Wood Bending/Lamination Techniques	3
ARWC	202	Architectural Millwork	3
ARWC	203	Beginning Furniture Projects	5
ARWC	204	Cabinet Installation- Residential/Commercial	4
ARWC	205	Advanced Joinery	4
ARWC	206	Cabinetmaking Computer Technology	4
ARWC	207	Veneering Technology	2
ARWC	208	Employment Preparation	3
ARWC	209	Advanced Projects *	5

*This course may be substituted with a work-based learning component.

Certificate of Competency: 79 Credits

PRODUCTION CABINET MAKING

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ARWC	101	Introduction to Cabinetmaking	3
ARWC	102	Safety Principles	4
ARWC	103	Cabinetry Blueprints/Plans	4
ARWC	104	Materials	2
ARWC	105	Machine Tools I	4
ARWC	106	Machine Tools II	4
ARWC	107	Machine Tools \CNC	3
ARWC	108	Portable Power Tools	3
ARWC	109	Hand Tools	3
ARWC	110	Basic Cabinet Joinery	4
ARWC	111	Tool Maintenance/Sharpening	3
ARWC	112	Cabinetmaking/ Face Frame Construction I	4
ARWC	113	Cabinetmaking/ Face Frame Construction II	4
ARWC	114	Cabinetmaking/32mm System	3
ARWC	115	Finishing Methods I	3
ARWC	116	Drawers and Doors	2
ARWC	117	Laminates / Countertops /Solid Surface	3
ARWC	118	Occupational Math	3
ARWC	119	Jigs and Fixtures	2
ARWC	120	Cabinetmaking/Commercial Construction	3

Auto Body Rebuilding & Refinishing

www.bates.ctc.edu/AutoBody

Students prepare for 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.

FACULTY

Joe Brewer, Doug Yarbrough

Associate in Applied Science: 116 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AUTOB	101	Auto Body Math Applications	3
AUTOB	102	Safety Principles	3
AUTOB	103	Materials Identification	3
AUTOB	104	Minor Body Repair Methods	5
AUTOB	105	Major Panel Replacement	5
AUTOB	106	Alignment – Sheet Metal	5
AUTOB	107	Alignment – Bumpers	3
AUTOB	108	Alignment – Head Lamps	1
AUTOB	109	Trim and Accessories	3
AUTOB	110	Window Mechanisms	4
AUTOB	111	Introduction to Surface Preparation	2
AUTOB	112	Surface Preparation Applications	5
AUTOB	113	Advanced Surface Preparations	5
AUTOB	201	Topcoat Systems	5
AUTOB	202	Topcoat Systems Applications	5
AUTOB	203	Shop Welding	5
AUTOB	204	Unibody Alignment	5
AUTOB	205	Body Over Frame Alignment	4
AUTOB	206	Glass Installation	4
AUTOB	207	Introduction to Plastic Repair	2
AUTOB	208	Plastic Repair Methods	5
AUTOB	209	Shop Management	3
AUTOB	210	Introduction to Estimating	4
AUTOB	211	Special Projects *	4
WBAS	101	Welding Basics	8

*This course may be substituted with a work-based learning component.

Certificate of Competency: 116 Credits

AUTO BODY REPAIR

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AUTOB	101	Auto Body Math Applications	3
AUTOB	102	Safety Principles	3
AUTOB	103	Materials Identification	3
AUTOB	104	Minor Body Repair Methods	5
AUTOB	105	Major Panel Replacement	5
AUTOB	106	Alignment ñ Sheet Metal	5
AUTOB	107	Alignment ñ Bumpers	3
AUTOB	108	Alignment ñ Head Lamps	1
AUTOB	109	Trim and Accessories	3
AUTOB	110	Window Mechanisms	4
AUTOB	111	Introduction to Surface Preparation	2
AUTOB	112	Surface Preparation Applications	5
AUTOB	113	Advanced Surface Preparations	5
AUTOB	201	Topcoat Systems	5
AUTOB	202	Topcoat Systems Applications	5
AUTOB	203	Shop Welding	5
AUTOB	204	Unibody Alignment	5
AUTOB	205	Body Over Frame Alignment	4
AUTOB	206	Glass Installation	4
AUTOB	207	Introduction to Plastic Repair	2
AUTOB	208	Plastic Repair Methods	5
AUTOB	209	Shop Management	3
AUTOB	210	Introduction to Estimating	4
AUTOB	211	Special Projects *	4
WBAS	101	Welding Basics	8

*This course may be substituted with a work-based learning component.

Certificate of Training: 20 Credits

AUTOMOTIVE REFINISHING

REQUIRED COURSEWORK			CREDITS
AUTOB	102	Safety Principles	3
AUTOB	111	Introduction to Surface Preparation	2
AUTOB	112	Surface Preparation Applications	5
AUTOB	201	Topcoat Systems	5
AUTOB	202	Topcoat Systems Applications	5

Automotive Technology

www.bates.ctc.edu/AutoMechanic

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, overhaul engines and transmissions, service fuel injection systems, and much more. Bates' automotive program is certified by the National Automotive Technicians Education Foundation (NATEF) for both secondary and post-secondary levels. Bates' Automotive Mechanic program instructors are Evaluation Team Leaders for NATEF and evaluate other programs in the Puget Sound area for NATEF membership eligibility. 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.

FACULTY

Mike Clark

Associate in Applied Science: 142 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
AUTOM	101	Basic Engines	4
AUTOM	102	Engine Systems	4
AUTOM	103	Basic Electrical Theory	4
AUTOM	105	Engines/Electrical Applications	3
AUTOM	106	Shop Safety and Meter Certification	1
AUTOM	121	Basic Engine Performance	5
AUTOM	122	Basic Ignition Systems	5
AUTOM	123	Introduction to Fuel Systems	4
AUTOM	124	Introduction to Emissions Systems	2
AUTOM	125	Introduction to Fuel Injection	2
AUTOM	130	Introduction to Lighting and Instruments	4
AUTOM	131	Introduction to Clutches and Manual Transmissions	4
AUTOM	132	Automatic Transmissions/Transaxles	4
AUTOM	133	Four and All-wheel Drive	4
AUTOM	140	Wheel Alignment and Steering Systems	4
AUTOM	141	Brake Systems	4
AUTOM	142	Disc and Drum Brakes	4
AUTOM	143	Heating and Air Conditioning Systems	4
AUTOM	201	Advanced Engine Repair	5
AUTOM	202	Engine Assembly	3
AUTOM	203	Automotive Electrical Systems	4
AUTOM	204	Battery, Starters, and Charging Systems	4
AUTOM	220	Ignition Systems Service	4
AUTOM	221	Fuel Systems Service	4
AUTOM	222	Emissions Systems Service	3
AUTOM	223	Fuel Injection	3
AUTOM	230	Lighting and Instrument Service	3
AUTOM	231	Clutches and Manual Transmission Service	5
AUTOM	232	Automatic Transmission and Transaxle Service	4
AUTOM	233	Four and All-Wheel Drive Service	4
AUTOM	240	Advanced Wheel Alignment and Steering Systems Service	4
AUTOM	241	Advanced Brake Service	4
AUTOM	242	Advanced Disc and Drum Brake Service	4
AUTOM	243	Applied HVAC Service	3

Automotive Mechanic Certificates of Training

These certificates correspond to the requirements of the Automotive Service Excellence (ASE) requirements. Students are encouraged to take one or more ASE certification tests so that they may qualify as ASE-certified technicians.

Certificate of Training, Engine Repair: 16 Credits

REQUIRED COURSEWORK			CREDITS
AUTOM	105	Basic Engines	4
AUTOM	106	Engine Systems	4
AUTOM	206	Advanced Engine Repair	5
AUTOM	207	Engine Assembly	3

Certificate of Training, Automatic Transmission and Transaxle: 6 Credits

REQUIRED COURSEWORK			CREDITS
AUTOM	209	Automatic Transmissions/Transaxles	6

Certificate of Training, Manual Drive Train and Axles: 12 Credits

REQUIRED COURSEWORK			CREDITS
AUTOM	208	Clutches and Manual Transmissions	6
AUTOM	210	Four and All-wheel Drive	6

Certificate of Training, Suspension and Steering: 6 Credits

REQUIRED COURSEWORK			CREDITS
AUTOM	211	Wheel Alignment and Steering Systems	6

Certificate of Training, Brakes: 10 Credits

REQUIRED COURSEWORK			CREDITS
AUTOM	212	Brake Systems	4
AUTOM	213	Disc and Drum Brakes	6

Certificate of Training, Electrical/Electronic Systems: 19 Credits

REQUIRED COURSEWORK			CREDITS
AUTOM	107	Basic Electrical Theory	4
AUTOM	108	Automotive Electrical Systems/Applications	6
AUTOM	111	Lighting and Instruments	5
AUTOM	112	Battery, Starters, and Charging Systems	4

Certificate of Training, Heating and Air Conditioning: 5 Credits

REQUIRED COURSEWORK			CREDITS
AUTOM	214	Heating and Air Conditioning Systems	5

Certificate of Training I - Engine Performance I: 11 Credits*

REQUIRED COURSEWORK			CREDITS
AUTOM	109	Basic Engine Performance	5
AUTOM	110	Ignition Systems	6

*Students must complete both Engine Performance I and Engine Performance II in order to receive ASE Certification A-8.

Certificate of Training I - Engine Performance II: 14 Credits*

REQUIRED COURSEWORK			CREDITS
AUTOM	113	Fuel Systems	6
AUTOM	114	Emissions Systems	4
AUTOM	205	Fuel Injection	4

*Students must complete both Engine Performance I and Engine Performance II in order to receive ASE Certification A-8.

Automotive Parts/Inventory/ Warehousing

www.bates.ctc.edu/AutoParts

Instruction takes place in a warehouse environment and in a fully-operational vehicle parts and accessories store open to the general public, giving students the opportunity to gain hands-on experience in inventory merchandise, wholesale and retail customers and working with vehicle parts vendors. Employment opportunities may include inventory and stock specialist, vehicle parts counter person, warehouse and distribution specialist, inventory clerk, shipping and receiving clerk, shipping documentation specialist, stock merchandiser, procurement specialist, counter and accessories sales, parts managers, materials movement worker, forklift operator, order puller and loading dock worker.

Certficate of Competency: 65 Credits

REQUIRED COURSEWORK			CREDITS
VPM	101	Applied Math	40
VPM	106	Material Movement	2
VPM	107	Storage and Distribution	5
VPM	108	Shipping and Receiving	5
VPM	109	Introduction to Vehicle Parts Merchandising	5
VPM	110	Principles of Inventory Control	5
VPM	112	Stock/Product Order	4
VPM	115	Principles of Salesmanship	5
VPM	116	Retail Point of Sale	3
VPM	119	Principles of Management	5
VPM	120	Employment Preparation	3
VPM	121	Retail Applications*	3
VPM	122	Warehouse Applications*	3
VPM	123	Stock Merchandising	3
VPM	124	Automotive Parts Systems	4
VPM	125	Product Research Systems	4
VPM	126	Returns, Exchanges, and POs	2

*This course may be substituted with a work-based learning component.

Certificate of Training: 17 Credits

INVENTORY/STOCK SPECIALIST

REQUIRED COURSEWORK			CREDITS
VPM	109	Introduction to Vehicle Parts Merchandising	5
VPM	110	Principles of Inventory Control	5
VPM	112	Stock/Product Order	4
VPM	123	Stock Merchandising	3

Certificate of Training: 29 Credits

VEHICLE PARTS COUNTER PERSON

REQUIRED COURSEWORK			CREDITS
VPM	109	Introduction to Vehicle Parts Merchandising	5
VPM	116	Retail Point of Sale	3
VPM	119	Principles of Management	5
VPM	120	Employment Preparation	3
VPM	121	Retail Applications*	3
VPM	124	Automotive Parts Systems	4
VPM	125	Product Research Systems	4
VPM	126	Returns, Exchanges, and POs	2

*This course may be substituted with a work-based learning component.

Certificate of Training: 24 Credits

WAREHOUSE/DISTRIBUTION SPECIALIST

REQUIRED COURSEWORK			CREDITS
VPM	101	Applied Math	4
VPM	106	Material Movement	2
VPM	107	Storage and Distribution	5
VPM	108	Shipping and Receiving	5
VPM	109	Introduction to Vehicle Parts Merchandising	5
VPM	122	Warehouse Applications*	3

*This course may be substituted with a work-based learning component.

Barber

www.bates.ctc.edu/Barber
www.bates.ctc.edu/BarberShop

Bates Technical College has the only 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.

Note: The minimum age for licensure as a barber in the State of Washington is 17 years of age.

FACULTY
Andrea Green
Jeff Olson

Certificate of Competency: 75 Credits

REQUIRED COURSEWORK			CREDITS
BARB	110	Barbering Theory	1
BARB	111	Scalp and Hair Analysis	2
BARB	112	Shampooing	3
BARB	113	Decontamination and Infection Control	5
BARB	114	Introduction to Barbering	5
BARB	115	Safety/First Aid	2
BARB	116	Basic Haircutting Techniques	4
BARB	117	Customer Service	3
BARB	118	Applied Communications	3
BARB	120	Math for Barbers	3
BARB	121	Facial Hair	5
BARB	122	Barbering Applications	5
BARB	123	Intermediate Haircutting Techniques	3
BARB	124	Haircutting Applications	5
BARB	125	Applied Human Relations	3
BARB	131	Advanced Techniques	4
BARB	132	Advanced Applications	4
BARB	133	Cutting and Styling Methods	4
BARB	134	Cutting and Styling Applications	5
BARB	135	Hair Styling	2
BARB	136	Artificial Hair Services	2
BARB	137	Practical Applications*	2

*This course may be substituted with a work-based learning component.

Biomedical Equipment Service Technician: Clinical Engineering

www.bates.ctc.edu/Biomedical

Health care, the largest industry in the country, employs more than 14 million people, and figures continue 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.

FACULTY

Art Cutting, Franklin Hsu, Landon Johnson

Prerequisite	Credits
BIOL 171 Human Anatomy and Physiology	5

To be taken prior to or within the first three quarters of start date.

Associate in Applied Science: 114 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
BMST	101	Safety Principles	4
BMST	102	Blood borne Pathogens	3
BMST	103	HIPAA	2
BMST	104	Applied Math	4
EEST	103	Electronics Principles I	5
EEST	104	DC Electronics	4
EEST	105	AC Electronics	5
EEST	106	Capacitors	4
EEST	107	Electronics Principles II	5
EEST	108	Amplifiers and Transistors	4
EEST	109	Electronic Devices	2
EEST	110	Introduction to Programmable Logic Controllers	5
EEST	201	Electronic Principles - Automation	5
EEST	202	Antenna and Satellite Systems	3
EEST	203	Magnetic and Laser Media	3
EEST	204	RF Receivers and Audio Amps	4
BMST	105	Testing Equipment	5
BMST	106	Soldering	2
BMST	107	Schematics	3
BMST	109	Applied Service I	3
BMST	110	Applied Service II	2
BMST	201	Imaging Systems	3
BMST	215	Introduction to Medical Terminology	3
BMST	217	Biomedical Instrumentation	5
BMST	218	Biomedical Equipment	3
BMST	219	Medical Equipment Research	3
BMST	220	Biomedical Engineering Applications *	5
		OR	5
BMST	298	Work-based Learning – No Seminar	

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Broadcasting/Video Production

www.bates.ctc.edu/Broadcasting

The broadcasting curriculum has been examined by and meets the requirements of the Society of Broadcast Engineers (SBE). Students are encouraged to test for the SBE certification upon completion of the program. Three options are offered:

Broadcast Operations includes on-air master control, content storage, playback operations, and editing; satellite downlink operations; operations/systems technician; automation technician; and VIS (visual information specialist).

Broadcast Engineering includes transmitter/microwave operations; video server/non-linear editing; technical training to support electronic news, sports, and field productions; transcoding and compression systems; broadcast equipment installation, maintenance, operation; and the technical training to support electronic news, sports and field productions.

Video Production includes planning and script development; lighting; set design and construction; camera operation; sound mixing; technical directing; content editing; graphics generation; and equipment training to support studio and remote production.

FACULTY
Roland Robinson, Ken Witkoe

Associate in Applied Science Degrees: 104-108 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

PROGRAM CORE COURSES (3 of 4 sets and electives are required)			CREDITS
SET 1	CORE ENGINEERING		
	BROAD 103	Safety and First Aid	2
	BROAD 105	Broadcast Electronics Theory	3
	BROAD 106	Applied Electronics	3
	BROAD 107	Electronic Concepts	3
	BROAD 108	Electronic Principles	3
SET 2	CORE OPERATIONS		
	BROAD 111	Master Control Operations 1	5
	BROAD 118	Control Room Equipment I	3
	BROAD 119	Basic Maintenance and Troubleshooting	3
	BROAD 123	Introduction to Broadcast Systems	3
SET 3	CORE PRODUCTION		
	BROAD 114	Introduction to Studio and Field Production	3
	BROAD 116	Principles of Lighting	3
	BROAD 121	Production Process Theory	3
	BROAD 127	Production Editing I	3
SET 4	CORE AUDIO		
	BROAD 109	Characteristics of Sound	3
	BROAD 112	Basic Audio Equipment	3
	BROAD 113	Studio Acoustics	3
	BROAD 120	Introduction to Digital Recording	5
	ELECTIVES		15

PROGRAM ADVANCED COURSES (one advanced option is required):

ADVANCED ENGINEERING			CREDITS
BROAD	201	Analog Systems I	3
BROAD	202	Advanced Broadcast Formats	3
BROAD	203	Introduction to Digital Systems	2
BROAD	209	AC/DC Circuits	5
BROAD	210	AC/DC Applications	4
BROAD	217	Audio Engineering	5
BROAD	219	Video Engineering	4
BROAD	285	Practicum I *	5
		ELECTIVES	3-5

ADVANCED OPERATIONS			
BROAD	221	Satellite Communications	2
BROAD	223	Systems Maintenance	5
BROAD	231	Broadcast Station Operations	5
BROAD	237	Control Room Equipment II	5
BROAD	243	Master Control Operations II	5
BROAD	248	Network Storage and Control	4
BROAD	286	Practicum II *	5
		ELECTIVES	3-5

ADVANCED PRODUCTION			
BROAD	239	Production Audio Preparation	5
BROAD	251	Introduction to the TV Process	3
BROAD	252	TV Production Applications	5
BROAD	255	Lighting Techniques	5
BROAD	260	Studio Camera Equipment	3
BROAD	262	Set Design	3
BROAD	267	Production Editing II	2
BROAD	287	Practicum III *	5
		ELECTIVES	3-5

CERTIFICATE OF COMPETENCY
BROADCAST AND VIDEO ELEMENTS: 70-72 CREDITS

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

PROGRAM COURSEWORK (3 of 4 sets and electives are required)			
SET 1	CORE ENGINEERING		
	BROAD 103	Safety and First Aid	2
	BROAD 105	Broadcast Electronics Theory	3
	BROAD 106	Applied Electronics	3
	BROAD 107	Electronic Concepts	3
	BROAD 108	Electronic Principles	3
SET 2	CORE OPERATIONS		
	BROAD 111	Master Control Operations 1	5
	BROAD 118	Control Room Equipment I	3
	BROAD 119	Basic Maintenance and Troubleshooting	3
	BROAD 123	Introduction to Broadcast Systems	3
SET 3	CORE PRODUCTION		
	BROAD 114	Introduction to Studio and Field Production	3
	BROAD 116	Principles of Lighting	3
	BROAD 121	Production Process Theory	3
	BROAD 127	Production Editing I	3

Broadcasting/Video Production (continued)

SET 4	CORE AUDIO		CREDITS
	BROAD 109	Characteristics of Sound	3
	BROAD 112	Basic Audio Equipment	3
	BROAD 113	Studio Acoustics	3
	BROAD 120	Introduction to Digital Recording	5
	ELECTIVES		15

CERTIFICATES OF TRAINING

BVP ENGINEERING CORE: 14 CREDITS			CREDITS
BROAD	103	Safety and First Aid	2
BROAD	105	Broadcast Electronics Theory	3
BROAD	106	Applied Electronics	3
BROAD	107	Electronic Concepts	3
BROAD	108	Electronic Principles	3

BVP OPERATIONS CORE: 14 CREDITS			
BROAD	111	Master Control Operations 1	5
BROAD	118	Control Room Equipment I	3
BROAD	119	Basic Maintenance and Troubleshooting	3
BROAD	123	Introduction to Broadcast Systems	3

BVP PRODUCTION CORE: 12 CREDITS			
BROAD	114	Introduction to Studio and Field Production	3
BROAD	116	Principles of Lighting	3
BROAD	121	Production Process Theory	3
BROAD	127	Production Editing I	3

BVP AUDIO CORE: 14 CREDITS			
BROAD	112	Basic Audio Equipment	3
BROAD	113	Studio Acoustics	3
BROAD	109	Characteristics of Sound	3
BROAD	120	Introduction to Digital Recording	5

ELECTIVES LIST			CREDITS
BROAD	117	Program Editing I	3
BROAD	125	Record & Playback Devices	3
BROAD	126	Elements of Audio I	3
BROAD	129	Audio Techniques	4
BROAD	204	Introduction to Operating Systems	3
BROAD	205	Receivers/Transmitters	5
BROAD	206	Power and Communication Systems	3
BROAD	207	Advanced Editing Projects	5
BROAD	215	ATSC Formats and Transcoding	2
BROAD	227	DTV Trans-Systems /8VSB	4
BROAD	229	Compression MPEG-II & AC-3	2
BROAD	247	Program Editing II	5
BROAD	254	Principles of Lighting	5
BROAD	265	Field Production	7
BROAD	273	Video Graphics Applications	5
BROAD	276	Technical Directing I	6
BROAD	283	Emerging Technologies	3
BROAD	288	Practicum IV *	5
BROAD	289	Practicum V *	5
BROAD	290	Practicum VI *	5

Students may receive elective credits for Digital Media classes. See the Digital Media instructor for classes offered.

Carpentry

www.bates.ctc.edu/Carpentry

Students prepare for apprenticeship 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.

FACULTY

Dan Smith

Associate in Applied Science: 116 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			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
CARPT	106	Power Tools	5
CARPT	107	Optical Instruments	3
CARPT	108	Plot Plans and Building Layout	3
CARPT	109	Introduction to Framing	4
CARPT	110	Foundation	3
CARPT	111	Foundation Footings	3
CARPT	112	Foundation Walls	5
CARPT	201	Floor Systems	5
CARPT	202	Wall and Ceiling Construction	5
CARPT	203	Stairs	3
CARPT	204	Introduction to Roofing	3
CARPT	205	Roof Construction	5
CARPT	206	Introduction to Exterior Finish Methods	4
CARPT	207	Exterior Doors and Windows	5
CARPT	208	Siding	5
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	215	Practical Applications*	2
WBAS	101	Welding Basics	8

*This course may be substituted with a work-based learning component.

Certificate of Competency: 116 Credits

CARPENTRY

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			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
CARPT	106	Power Tools	5
CARPT	107	Optical Instruments	3
CARPT	108	Plot Plans and Building Layout	3
CARPT	109	Introduction to Framing	4
CARPT	110	Foundation	3
CARPT	111	Foundation Footings	3
CARPT	112	Foundation Walls	5
CARPT	201	Floor Systems	5
CARPT	202	Wall and Ceiling Construction	5
CARPT	203	Stairs	3
CARPT	204	Introduction to Roofing	3
CARPT	205	Roof Construction	5
CARPT	206	Introduction to Exterior Finish Methods	4
CARPT	207	Exterior Doors and Windows	5
CARPT	208	Siding	5
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
WBAS	101	Welding Basics	8

*This course may be substituted with a work-based learning component.

Certificate of Competency: 77 Credits

Carpenter Technician

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
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	106	Power Tools	5
CARPT	110	Foundation	3
CARPT	111	Foundation Footings	3
CARPT	112	Foundation Walls	5
CARPT	201	Floor Systems	5
CARPT	202	Wall and Ceiling Construction	5
CARPT	203	Stairs	3
CARPT	205	Roof Construction	5
CARPT	208	Siding	5
CARPT	211	Interior Doors and Windows	5
CARPT	292	Independent Projects *	2

Carpentry (cont'd)

Certificates of Training

BASIC CARPENTRY 1: 16 CREDITS

REQUIRED COURSEWORK			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: 16 CREDITS

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

CONCRETE FOUNDATIONS: 14 CREDITS

REQUIRED COURSEWORK			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: 22 CREDITS

REQUIRED COURSEWORK			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: 17 CREDITS

REQUIRED COURSEWORK			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

INTERIOR FINISHING: 16 CREDITS

REQUIRED COURSEWORK			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

CARPENTRY: MULTI-CRAFT TRADES: 10 CREDITS

REQUIRED COURSEWORK			CREDITS
CARPT	102	Safety Principles	3
CARPT	105	Tools and Equipment	4
CARPT	215	Practical Applications	2
CARPT	292	Independent Projects	1

Civil Engineering Technology

www.bates.ctc.edu/CivilEngineering

Students prepare for careers as civil engineering technicians who typically work under the direct supervision of a project engineer. The program environment emulates a civil engineering/surveying firm, giving students practice in many aspects of the profession, including defining project requirements, conducting survey/field work, field engineering, construction staking, designing, estimating, modeling and client presentations. Instruction includes computer-aided design, the preparation of engineering calculations, and coordinate systems which include lengths, directions, slopes, bearings areas, volumes, weights densities, moments, forces, reactions, flows, and loads. Students learn to use a variety of computer software application packages, including, but not limited to Word, Excel, Civil 3D, CadrePro, Hydraflow and SurvCE

Program Prerequisites: COMPASS Pre-algebra 55, Reading 80, or transition from basic studies.

FACULTY
Taina Anderson

Associate in Applied Science-Transfer: 101 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	141	Precalculus I	
		-or-	
MATH&	142	Precalculus II	5
ENGL&	101	English Composition I	5
CMST&	210	Interpersonal Communications	5
		-or-	
CMST&	230	Small Group Communications	
		Electives (Two Courses)	10

Transferable CTC commonly numbered distribution course or transferable CTC commonly numbered course

ENGINEERING CORE REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimension Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Intro to Engineering Graphics	3

REQUIRED COURSEWORK			CREDITS
CET	103	Statics	3
CET	105	Structural Analysis	3
CET	109	Introduction to Surveying	3
CET	111	Civil 3D Surfaces and Points	3
CET	113	Hydrology	3
CET	117	GIS Resources	3
CET	121	Coordinate Geometry	3
CET	123	Alignment and Profiles	3
CET	125	Basic Corridors in Civil 3D	3
CET	127	Surveying - Control	3
CET	131	Construction Materials	3
CET	133	Civil 3D Grading	3
CET	137	Topographic Surveying	3
CET	202	Finite Element Models	3
CET	204	3D Structural Modeling	3
CET	212	Open Channel Flow	3
CET	226	Construction Staking	3
CET	297	Work Based Seminar or Special Topics	2
CET	231	Projects I	4
CET	232	Projects II	4
		-or-	
CET	298	Work Based Learning – no seminar	8

Associate in Applied Science: 91 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	141	Precalculus I	
		-or-	
MATH&	142	Precalculus II	5
ENGL&	101	English Composition I	5
CMST&	210	Interpersonal Communications	5
		-or-	
CMST&	230	Small Group Communications	

ENGINEERING CORE REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimension Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Intro to Engineering Graphics	3

REQUIRED COURSEWORK			CREDITS
CET	103	Statics	3
CET	105	Structural Analysis	3
CET	109	Introduction to Surveying	3
CET	111	Civil 3D Surfaces and Points	3
CET	113	Hydrology	3
CET	117	GIS Resources	3
CET	121	Coordinate Geometry	3
CET	123	Alignment and Profiles	3
CET	125	Basic Corridors in Civil 3D	3
CET	127	Surveying - Control	3
CET	131	Construction Materials	3
CET	133	Civil 3D Grading	3
CET	137	Topographic Surveying	3
CET	202	Finite Element Models	3
CET	204	3D Structural Modeling	3
CET	212	Open Channel Flow	3
CET	226	Construction Staking	3
CET	297	Work Based Seminar or Special Topics	2
CET	231	Projects I	4
CET	232	Projects II	4
		-or-	
CET	298	Work Based Learning – no seminar	8

CNC Machinist

www.bates.ctc.edu/CNC

This program prepares students for employment in the machinist/manufacturing field. Using a variety of machine tools including computer numeric control (CNC) equipment, students learn to make metal parts to precise specifications. Knowledge of the working properties of metal, capabilities of machine tools and equipment, and standard shop practices prepare students for employment in all types of factories, industries, and maintenance shops.

FACULTY

Barry Young, Denell Zander

Associate in Applied Science: 99 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5

RREQUIRED CORE

MACH	116	Introduction to Machining Technology	3
MACH	117	Measurement Applications	5
MACH	118	Geometric Dimensioning and Tolerancing	5
MACH	119	Blueprint Reading II and SPC	5
MACH	120	Machine Shop Mathematics II	5

REQUIRED COURSEWORK

CNCM	102	Machining Fundamentals	3
CNCM	110	CNC Mill I	2
CNCM	111	Introduction to CNC Technology	2
CNCM	113	CNC Programming	4
CNCM	114	CNC Troubleshooting	3
CNCM	119	CNC Lathe I	3
CNCM	203	CNC Mill II	5
CNCM	204	CNC Mill III	5
CNCM	207	Advanced Projects I	5
CNCM	208	Advanced Projects II	5
CNCM	209	Advanced Manufacturing Processes	3
CNCM	211	CNC Lathe II	5
CNCM	212	CNC Lathe III	5
CNCM	213	Aerospace Blueprint Reading	3
CNCM	215	Computer-Aided Manufacturing	5
CNCM	216	Introduction to Computer-Aided Drafting (CAD)	5
CNCM	217	Emergent Technologies	3

Certificate of Competency

CNC Operator: 34 CREDITS

REQUIRED CORE

MACH	116	Introduction to Machining Technology	3
MACH	117	Measurement Applications	5
MACH	118	Geometric Dimensioning and Tolerancing	5
MACH	119	Blueprint Reading II and SPC	5
MACH	120	Machine Shop Mathematics II	5

REQUIRED COURSEWORK

CNCM	102	Machining Fundamentals	3
CNCM	213	Aerospace Blueprint Reading	3
CNCM	110	CNC Mill I	2
CNCM	119	CNC Lathe I	3
CNCM	125	Machine Shop Mathematics II	5

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Commercial Truck Driving-Entry Level

www.bates.ctc.edu/TruckDriving

Students prepare for entry-level employment as commercial truck drivers with the goal of a Class A Commercial Driver's License (CDL) with all endorsements. Training takes place in classrooms, on Bates' truck driving range, and on the road, using a variety of equipment.

Note: Through an Opportunity Grant, special tuition and book funding is available to assist low-income adult students entering this program. Contact Ramon Burton, 253.680.7544, for more information.

Prerequisites:

Applicants must:
1. possess a valid Washington State driver's license;
2. have a driving record with no DUI, negligent, reckless, or hit and run infractions within the past five years;
3. have no more than three moving violations in the past 36 months (a state vehicle operating requirement);
4. must be able to pass the Federal Department of Transportation physical exam and drug screen;
5. not have a felony within the past five years;
6. be a minimum of 18 years of age to enroll in local commercial driving; and
7. be a minimum of 21 years of age to enroll in long-haul commercial driving.

FACULTY
Dan French, Bob Gunter, Marc Jones, Pam Simpson, Wade Westphal

Certificate of Training: 40 Credits

REQUIRED COURSEWORK			CREDITS
TRUCK	101	Safety/First Aid	3
TRUCK	102	Introduction to the Trucking Industry	4
TRUCK	103	Commercial Driver's License (CDL)	4
TRUCK	104	Pre-Trip Requirements	3
TRUCK	105	Close Quarters Operation	5
TRUCK	106	Materials/Cargo I	3
TRUCK	107	City/Town Driving	5
TRUCK	108	Freeway/Open Road I	5

Students must choose one option:

OPTION A: Local

TRUCK	110	City/Town Driving	4
TRUCK	111	Materials/Cargo II	4

OPTION B: Long Haul

TRUCK	112	Freeway/Open Road II	4
TRUCK	113	Advanced Commercial Driving	4

Certificate of Training: 3 Credits
COMMERCIAL DRIVER LICENSE--CLASS B

REQUIRED COURSEWORK			CREDITS
TRUCK	109	Commercial Driver Class B	3

Computer Networking Systems Technician

www.bates.ctc.edu/ComputerNetworking

Computer network systems technicians link the hardware and software that comprise computer data communications networks. They install, configure and maintain network components, work on client workstations, servers, domain controllers, shared printers, cables, and routers. They maintain network equipment, applications, data and user interfaces and workstations as well as troubleshoot local and wide area networks. Desktop, server and network administration positions are needed in all industries due to the ongoing movement towards computer automation. Students are encouraged to obtain Microsoft, CompTIA and Cisco certifications, including A+, MCSA, MCITP, MCTS, MCDST and CCNA.

FACULTY
Dave Skeen

Associate in Applied Science: 112 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ETECH	101	Introduction to Electronics	2
ETECH	102	DC Circuits	5
ETECH	103	AC Circuits	5
ETECH	104	Analog Circuits	5
ETECH	105	Digital Circuits	5
ETECH	106	Microcontrollers	5
CNST	201	Cisco Network Fundamentals	5
CNST	202	Cisco Routing Protocols and Concepts	5
CNST	205	Fundamentals of Linux	5
CNST	206	MS Client Operating Systems	5
CNST	207	Network Infrastructure	5
CNST	209	Directory Services	5
CNST	210	Network Security	5
INFO	101	Computer Applications Essentials	5
INFO	104	A+ Essentials	5
INFO	105	A+ Practical	5
INFO	110	Emerging Technologies	5

Students must choose 15 credits from the attached elective list.

ELECTIVES LIST			CREDITS
CNST	212	Cisco LAN Switching and Wireless	5
CNST	213	Cisco - Accessing the WAN	5
CNST	292	Independent Projects	1-5
ECS	201	Telecommunications Network Cabling	5
ECS	202	Fiber Optics	5
ECS	249	Job Search and Preparation	3
ETECH	108	CET Certification Preparation	3
INFO	108	Project Management	5

Culinary Arts

www.bates.ctc.edu/CulinaryArts
www.bates.ctc.edu/Dining

Students prepare for a variety of careers in the culinary arts profession and for advanced education at other culinary institutions. Career paths include dinner cook, institutional cook, cook's helper, baker's helper, fry cook, and short order cook. 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. Graduates receive a broad base of skills and are well prepared for a variety of entry-level culinary jobs.

FACULTY

Richard Houle, Roger Knapp, J.J. Meland

Associate in Applied Science: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
CARTS	101	Intro Fundamentals to Culinary Arts	6
CARTS	102	Sanitation and Food Safety	2
CARTS	103	Product Identification	2
CARTS	104	Fundamentals of Table Service	3
CARTS	105	Garde Manger	1
CARTS	106	Breakfast Service	2
CARTS	107	Food service math and cost control	4
CARTS	108	Fundamentals of cooking II	4
CARTS	109	Cooking Applications	9
CARTS	110	Food and beverage service	6
CARTS	111	Introduction to baking	5
CARTS	112	Advanced cooking techniques	5
CARTS	201	Menu development	2
CARTS	202	Meats and seafood	3
CARTS	203	Nutrition	2
CARTS	204	Restaurant desserts	5
CARTS	205	Regional and International cuisine	6
CARTS	206	Garde Manger II	2
CARTS	207	Catering and Banquets	8
CARTS	208	Classical cooking applications	9
CARTS	209	Ice Carving	1
CARTS	210	Intro to management	5
CARTS	211	Chef's table service	5
CARTS	212	Techniques of Restaurant Cooking	4
CARTS	213	Wine/ Spirits	4

Certificate of Competency: 64 Credits

CULINARY ARTS LINE COOK

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
CARTS	101	Intro Fundamentals to Culinary Arts	6
CARTS	102	Sanitation and Food Safety	2
CARTS	103	Product Identification	2
CARTS	104	Fundamentals of Table Service	3
CARTS	105	Garde Manger	1
CARTS	106	Breakfast Service	2
CARTS	107	Food service math and cost control	4
CARTS	108	Fundamentals of cooking II	4
CARTS	109	Cooking Applications	9
CARTS	110	Food and beverage service	6
CARTS	111	Introduction to baking	5
CARTS	112	Advanced cooking techniques	5

Certificate of Training: 37 Credits

MOBILE FOOD COOK

REQUIRED COURSEWORK			CREDITS
CARTS	102	Sanitation and Food Safety	2
CARTS	103	Product Identification	2
CARTS	105	Garde Manger	1
CARTS	106	Breakfast Service	2
CARTS	107	Food Service Math and Cost Control	4
CARTS	108	Fundamentals of Cooking	4
CARTS	112	Advanced Cooking Techniques	5
CARTS	201	Menu Development	2
CARTS	118	Introduction to Catering and Banquets	4
CARTS	120	Food Truck Fundamentals	3
CARTS	121	Business Plans for Mobile Food Services	3
CARTS	122	Food Truck Operation	3
CARTS	214	Employment Preparation	2

Database Technology

www.bates.ctc.edu/Database

From retail to financial services, healthcare to automotive, today's businesses are computer and information-driven, making database developers an important position in most industries. Database developers organize and manage information to corporations and organizations large and small. Students acquire computer and software development skills and prepare for high-demand Oracle certifications. Career opportunities can include data analyst, database administrator, database application developer, database resource specialist and help desk analyst. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

FACULTY
Judith Graham

Associate of Applied Science - Transfer: 115 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	146	Introduction to Stats	5
MATH&	141	Precalculus I	5
ENGL&	101	College Composition	5
		Social Sciences/Communications Studies:	5
SOC&	101	Introduction to Sociology, or	
CMST&	210	Interpersonal Communications, or	
PSYC&	100	General Psychology	
		Humanities	5
ART&	100	Art Appreciation, or	
HIST	101	History of Science and Technology, or	
ASL&	101	American Sign Language I	

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL	5
DATA	103	Operating Systems	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
DATA	201	PL/SQL	5
DATA	202	Database Fundamentals I	5
DATA	203	Database Fundamentals II	5
DATA	204	Database Fundamentals III	5
DATA	208	SQL Server Admin	5
CS&	141	Computer Science I – JAVA	5
SOFT	142	Programming in JAVA II	5
SOFT	207	Dynamic Web Pages	5
DATA	290	Capstone Project	5

Associate in Applied Science: 110 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
		Human Relations:	5
SOC&	101	Introduction to Sociology, or	
CMST&	210	Interpersonal Communications, or	
PSYC&	100	General Psychology	
		Communications	5
ENGL&	101	College Composition	
		Computations	10
MATH&	146	Introduction to Stats, and	
MATH&	141	Precalculus I	

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL	5
DATA	103	Operating Systems	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
DATA	201	PL/SQL	5
DATA	202	Database Fundamentals I	5
DATA	203	Database Fundamentals II	5
DATA	204	Database Fundamentals III	5
SOFT	204	Open Source Programming	5
CS&	141	Computer Science I – JAVA	5
SOFT	142	Programming in JAVA II	5
SOFT	207	Dynamic Web Pages	5
DATA	290	Capstone Project	5

Certificate of Competency: 60 Credits

DATABASE TECHNICIAN

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL	5
DATA	103	Operating Systems	5
DATA	201	PL/SQL	5
DATA	202	Database Fundamentals I	5
DATA	203	Database Fundamentals II	5
DATA	204	Database Fundamentals III	5
SOFT	101	Computer Concepts	5
WEB	101	Microsoft Office Applications	5

Dental Assisting

www.bates.ctc.edu/DentalAssisting

Students prepare for careers as chairside 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. Note: General education requirements must be taken 1) prior to entering the program or, 2) before or after the regularly schedule dental assisting coursework.

Prerequisites:

1. High School diploma or GED
2. Minimum age for program entry: 18 years of age
3. A National and Washington State Patrol background check clearance
4. Documentary evidence of current immunizations and medical/dental evaluation within two weeks of program start date.
5. Documentary evidence of current American Heart Association, Health Care Provider approved CPR card within two weeks of program start date.
6. Must meet pre-determined COMPASS levels in reading and writing
7. Meet with Dental Assisting faculty to recieve program-specific documentation.

FACULTY

Shawn Adams, Teri Amundsen, Patty Reno

Associate in Applied Science: 95 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DNTA	110	Introduction to Dental Assisting	2
DNTA	111	Infection Control	5
DNTA	112	Biomedical Sciences	5
DNTA	114	Dental Sciences I	4
DNTA	120	Introduction to Chairside Assisting	4
DNTA	121	Chairside Assisting I	4
DNTA	122	Dental Materials I	3
DNTA	124	HIV/AIDS Training	1
DNTA	127	Office Administration	3
DNTA	128	Dental Sciences II	3
DNTA	130	Dental Sciences III	3
DNTA	131	Chairside Assisting II	3
DNTA	134	Chairside Assisting III	3
DNTA	139	Restorative Services I	5
DNTA	144	Dental Radiology	5
DNTA	146	Chairside Assisting IV	5
DNTA	147	Dental Materials II	3
DNTA	150	Dental Sciences IV	3
DNTA	151	Clinical Experience I	5
DNTA	152	Dental Materials III	4
DNTA	153	Office Administration Applications	2
DNTA	162	Clinical Experience II	3
DNTA	165	Clinical Experience III	2

Certificate of Competency: 90 Credits

DENTAL ASSISTANT

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
90+	Level	Communications	5

REQUIRED COURSEWORK			CREDITS
DNTA	110	Introduction to Dental Assisting	2
DNTA	111	Infection Control	5
DNTA	112	Biomedical Sciences	5
DNTA	114	Dental Sciences I	4
DNTA	120	Introduction to Chairside Assisting	4
DNTA	121	Chairside Assisting I	4
DNTA	122	Dental Materials I	3
DNTA	124	HIV/AIDS Training	1
DNTA	127	Office Administration	3
DNTA	128	Dental Sciences II	3
DNTA	130	Dental Sciences III	3
DNTA	131	Chairside Assisting II	3
DNTA	134	Chairside Assisting III	3
DNTA	139	Restorative Services I	5
DNTA	144	Dental Radiology	5
DNTA	146	Chairside Assisting IV	5
DNTA	147	Dental Materials II	3
DNTA	150	Dental Sciences IV	3
DNTA	151	Clinical Experience I	5
DNTA	152	Dental Materials III	4
DNTA	153	Office Administration Applications	2
DNTA	162	Clinical Experience II	3
DNTA	165	Clinical Experience III	2

Dental Lab Technician

www.bates.ctc.edu/DentalLab

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.

Prerequisites:

1.A high school diploma or GED.

2.Applicants must be fully ready to enter into general education courses. This entry requirement may be satisfied by providing the registrar with official transcripts showing completion of general education courses, or by satisfactory completion of placement tests that enable the student to enroll directly into required general education courses.

3.Students must take and satisfactorily complete a hands-on wax carving test.

FACULTY
Bob Criss, Kristina Merriman

Associate in Applied Science: 115 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
100+ Level	Human Relations	5
100+ Level	Communications	5
100+ Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
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
DENLB	105	Denture Processes II	4
DENLB	106	Dental Anatomy II	2
DENLB	107	Denture Processes III	4
DENLB	108	Denture Processes IV	3
DENLB	110	Introduction to Orthodontics	3
DENLB	111	Orthodontic Appliances – Fixed	3
DENLB	112	Orthodontic Appliances – Removable	3
DENLB	120	Removable Partial Dentures I	3
DENLB	121	Removable Partial Dentures II	3
DENLB	122	Removable Partial Dentures III	4
DENLB	123	Removable Partial Dentures IV	3
DENLB	124	Advanced Dentures	3
		or	
DENLB	125	Advanced Orthodontics	3
		or	
DENLB	126	Advanced Removable Partial Dentures	3
DENLB	201	Tooth Morphology Practicum	5
DENLB	202	Dental Materials II	2
DENLB	203	Fixed Prosthodontics I	5
DENLB	204	Principles of Occlusion	2
DENLB	205	Fixed Prosthodontics II	5
DENLB	206	Ceramics I	2
DENLB	207	Understructure Design	5
DENLB	208	Ethics, Jurisprudence & Laboratory Management	3
DENLB	209	Ceramics II	5
DENLB	211	Ceramics III	4

REQUIRED COURSEWORK (cont'd)			CREDITS
DENLB	212	Computer Aided Design/Computer Aided Manufacturing	5
DENLB	213	Advanced Technologies	4
		or	
DENLB	214	Advanced Crown & Bridge	3
		or	
DENLB	215	Advanced Dental Ceramics	3
		and	
DENLB	296	Work-based Learning Seminar and	1
DENLB	297	Work-based Learning Experience	3
		or	
DENLB	298	Work-based Learning Experience – No seminar	4

Certificate of Competency: 62 Credits

DENTAL LAB TECHNICIAN

GENERAL EDUCATION REQUIREMENTS		CREDITS
90+ Level	Human Relations	5
90+ Level	Communications	5
90+ Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
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
DENLB	105	Denture Processes II	4
DENLB	106	Dental Anatomy II	2
DENLB	107	Denture Processes III	4
DENLB	108	Denture Processes IV	3
DENLB	110	Introduction to Orthodontics	3
DENLB	111	Orthodontic Appliances – Fixed	3
DENLB	112	Orthodontic Appliances – Removable	3
DENLB	120	Removable Partial Dentures I	3
DENLB	121	Removable Partial Dentures II	3
DENLB	122	Removable Partial Dentures III	4
DENLB	123	Removable Partial Dentures IV	3

Denturist

www.bates.ctc.edu/Denturist

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. 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, or Arizona denturist's license examination. Instruction includes anatomy, physiology, 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 and spring quarters.

Prerequisites:

1. A high school diploma or GED.
2. Applicants must be fully ready to enter into general education courses. This entry requirement may be satisfied by providing the registrar with official transcripts showing actual completion of general education courses, or by satisfactory completion of placement tests that enable the student to enroll directly into required general education courses.
3. Applicants must take and pass aptitude tests measuring dexterity and the ability to visualize three- dimensional forms.
4. Personal interview with instructor.

FACULTY

Mauricio Henriquez, Dr. Kenneth Kais

Associate in Applied Science: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DNTU	101	Asepsis, Infection, Hazard Control	2
DNTU	102	Biological Concepts	3
DNTU	103	Introduction to Complete Denture Prosthodontics	3
DNTU	104	Baseplates and Occlusion Rims	2
DNTU	105	Tooth Selection and Set I	3
DNTU	106	Dental Materials I	2
DNTU	107	Denture Techniques	2
DNTU	108	Complete Denture Fabrication I	2
DNTU	109	Dental Office Management I	1
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 - RPD	3
DNTU	117	Dental Office Management II	2
DNTU	118	Clinical Denture Procedures I	2
DNTU	119	Dental Impressions Procedures I	2
DNTU	120	Head Anatomy and Physiology II	3
DNTU	121	Tooth Selection and Set III	1
DNTU	123	Complete Denture Repair I	2

REQUIRED COURSEWORK (cont'd)			CREDITS
DNTU	124	Casts - Partials	2
DNTU	125	Oral Pathology	2
DNTU	126	Clinical Denture Procedures II	2
DNTU	127	Dental Impressions Procedures II	2
DNTU	128	Fabrication Clinical II	1
DNTU	129	Polish Methods – RDP Frames	1
DNTU	131	Wax Patterns - Partials	4
DNTU	132	Teeth Arrangement - RPD	2
DNTU	135	Intro to Oral Pathology I	3
DNTU	136	Clinical Denture Procedures III	2
DNTU	138	Fabrication Clinical III	2
DNTU	139	Dental Office Management III	2
DNTU	201	Complete Denture Repair II	2
DNTU	203	RPD Repair Methods	3
DNTU	204	Dental Office Management IV	2
DNTU	205	Denture Adjustments	1
DNTU	206	Ethics and Jurisprudence	1
DNTU	207	Malocclusions	2
DNTU	208	Clinical Denture Procedures IV	2
DNTU	210	Geriatric Patient Needs	3
DNTU	211	Fabrication Clinical IV	2
DNTU	212	Alternative RPD Systems	2
DNTU	213	Implant and Precision Attachments	1
DNTU	214	Advanced Special Services	1
DNTU	215	Advanced Dental Appliances	1
DNTU	220	Dental Office Management V	2
DNTU	222	Fabrication Clinical V	3
DNTU	223	Dental Office Management VI	3
DNTU	229	Clinical Denture Procedures V	4
DNTU	233	Finish Methods - RPD	1

Diesel & Heavy Equipment Mechanic

www.bates.ctc.edu/Diesel

Students are prepared for employment in the diesel and heavy equipment industry, diagnosing, repairing, rebuilding, and replacing, components of diesel powered vehicles in an on–campus shop environment. Students learn the theory and application in a live shop setting working on actual customer equipment, preparing them for employment in the industry. With permission from the employer and the instructor the student may go on work based learning where they can work in the industry and receive college credits while working. The training received in the program educates the student for employment in the fields of repair and servicing of over the road trucks and equipment, heavy/construction equipment, and marine, power generation and agricultural equipment. Certificates of Training, a Certificate of Competency, and an "Associate in Applied Science Degree" are awarded as earned in the program. The program is articulated with BAS degree programs at Centralia College and Montana State University – Northern.
Customized training and scholarships are available.

FACULTY
Lee Jefferson Jr., Mick McGuire, Phil Marr, Mike Sartore

Associate in Applied Science: 105 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DIESL	100	Basic Electrical Systems	5
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
DIESL	112	Electrical Systems Application	4
DIESL	113	Electronic Engine Systems	3
DIESL	114	Mobile Air Conditioning Systems	3
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	Servicing Manual Transmissions	4
DIESL	151	Basic Vehicle Service I	5
DIESL	152	Basic Vehicle Service II	5
DIESL	153	Basic Vehicle Service III	5
DIESL	206	Advanced Service Applications *	7
DIESL	205	Advanced Service Techniques *	15
		Electives	15

ALLOWABLE ELECTIVES			
DIESL	208	Advanced Service Techniques	7
DIESL	291	Practical Applications	1-18
DIESL	292	Independent Projects I	1-5
DIESL	293	Independent Projects II	1-5
DIESL	296	Work-Based Learning	1-15
TRUCK	109	Commercial Driver Class B	3
FKLFT	101	Forklift Operations	1
WBAS	101	Welding Basics	8

Certificate of Competency: 75 Credits

Diesel Service Technician

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
DIESL	100	Basic Electrical Systems	5
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
DIESL	112	Electrical Systems Application	4
DIESL	113	Electronic Engine Systems	3
DIESL	114	Mobile Air Conditioning Systems	3
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	Servicing Manual Transmissions	4
DIESL	151	Basic Vehicle Service I	5
DIESL	152	Basic Vehicle Service II	5
DIESL	153	Basic Vehicle Service III	5

Certificate of Training: 15 Credits

TRUCK AND HEAVY EQUIPMENT ELECTRICAL SYSTEMS

REQUIRED COURSEWORK			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

Certificate of Training: 13 Credits

DIESEL ENGINES

REQUIRED COURSEWORK			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

Certificate of Training: 15 Credits

HEAVY DUTY TRUCK DRIVE TRAINS

REQUIRED COURSEWORK			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	Servicing Manual Transmissions	4

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Digital Media

www.bates.ctc.edu/DigitalMedia

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.

FACULTY

Brian Parker

Associate in Applied Science: 106 Credits

GENERAL EDUCATION REQUIREMENTS	CREDITS
ENGL& 100+	5
CMST& 100+	5
MATH 100+	5

REQUIRED COURSEWORK		CREDITS
DIGIT 102	Image Editing	5
DIGIT 103	Graphic Generation	5
DIGIT 105	Digital Imaging	5
DIGIT 121	Pre Production Process	5
DIGIT 126	Production Process	5
DIGIT 127	Post Production Process	5
DIGIT 130	Production Editing I	3
DIGIT 131	Production Editing II	3
DIGIT 132	Digital Media - Video	5
DIGIT 141	Compositing I	5
DIGIT 142	Compositing II	5
DIGIT 143	Digital Media - Animation	5
DIGIT 145	Digital Media - Audio	5
DIGIT 210	Pre-Production Project I	5
DIGIT 211	Production Process Project I	5
DIGIT 212	Post-Production Project I	5
DIGIT 220	Pre-Production Project II	5
DIGIT 221	Production Process Project II	5
DIGIT 222	Post-Production Project II	5

Associate in Applied Science- Transfer: 116 Credits

GENERAL EDUCATION REQUIRMENTS	CREDITS
ENG& 100+ English	5
CMT& 100+ Communications	5
MATH 100+Mathematics "&" (quantitative and symbolic reasoning)	5
XXX& 100+GEN ED; HUM/S.S./ N.S./CMST/MATH	5
XXX& 100+GEN ED; HUM/S.S./ N.S./CMST/MATH	5

Required Coursework

DIGIT 102	Image Editing	5
DIGIT 103	Graphic Generation	5
DIGIT 105	Digital Imaging	5
DIGIT 121	Pre Production Process	5
DIGIT 126	Production Process	5
DIGIT 127	Post Production Process	5
DIGIT 130	Production Editing I	3
DIGIT 131	Production Editing II	3
DIGIT 132	Digital Media - Video	5
DIGIT 141	Compositing I	5

(CONT'D) REQUIRED COURSEWORK		CREDITS
DIGIT142	Compositing II	5
DIGIT143	Digital Media - Animation	5
DIGIT145	Digital Media - Audio	5
DIGIT210	Pre-Production Project I	5
DIGIT211	Production Process Project I	5
DIGIT212	Post-Production Project I	5
DIGIT220	Pre-Production Project II	5
DIGIT221	Production Process Project II	5
DIGIT222	Post-Production Project II	5

Certificate of Competency: 76 Credits

GENERAL EDUCATION REQUIREMENTS	CREDITS
90+ Level Human Relations	5
90+ Level Communications	5
90+ Level Mathematics	5

REQUIRED COURSEWORK		CREDITS
DIGIT 102	Image Editing	5
DIGIT 103	Graphic Generation	5
DIGIT 105	Digital Imaging	5
DIGIT 121	Pre Production Process	5
DIGIT 126	Production Process	5
DIGIT 127	Post Production Process	5
DIGIT 130	Production Editing I	3
DIGIT 131	Production Editing II	3
DIGIT 132	Digital Media - Video	5
DIGIT 141	Compositing I	5
DIGIT 142	Compositing II	5
DIGIT 143	Digital Media - Animation	5
DIGIT 145	Digital Media - Audio	5

Certificate of Training: 15 Credits
Video Production

REQUIRED COURSEWORK		CREDITS
DIGIT 121	Pre Production Process	5
DIGIT 126	Production Process	5
DIGIT 127	Post Production Process	5

Certificate of Training: 16 Credits
Editing

REQUIRED COURSEWORK		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

Certificate of Training: 15 Credits
Motion Graphics

REQUIRED COURSEWORK		CREDITS
DIGIT 141	Compositing I	5
DIGIT 142	Compositing II	5
DIGIT 143	Digital Media - Animation	5

Early Childhood Education

www.bates.ctc.edu/EarlyEducation

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. This program is accredited 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.

Recommended:
Complete all 100 level ECE courses before entering 200 level ECE courses.

Prerequisites:
1. Pass the Department of Early Learning Portable Background Check prior to the 1st day of class
2. Negative Mantoux TB test in the 12 months prior to 1st day of class
3. Complete entrance testing at an 80-level minimum

FACULTY
Lisa Webb

Associate in Applied Science - Transfer: 90 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	ENGL& 101	5
100+	Level	Mathematics	5
100+	Level	Humanities/Social Sciences	10
100+	Level	Humanities/Social Sciences designated as a (HR)	15

REQUIRED COURSEWORK			
ECED&	105	Intro to Early Childhood Education (HR)	5
ECED&	107	Health, Nutrition and Safety	5
EDUC&	115	Child Development (HR)	5
ECED&	120	Practicum – Nurturing Relationships *	2
EDUC&	130	Guiding Behavior	3
EDUC&	150	Child, Family and Community	3
ECED&	160	Curriculum Development	5
ECED&	170	Environments for Young Children	3
ECED&	180	Language & Literacy Development	3
ECED&	190	Observation and Assessment	3
EDUC&	203	Exceptional Child *	3
ECE	204	Early Childhood Practicum II *	2
ECE	207	Professionalism *	5
ECE	210	Early Childhood Practicum III *	2
ECE	211	Emotional and Social Development	3
ECE	212	Cognitive Development *	5
ECE	213	Creative Experience-Art & Movement (HR)	5
Choose one		ECED&132, ECED& 134, ECED& 136, ECED& 139	3

*A 2.0 is required in each key assessment course to meet the 5 levels of proficiency.

Associate in Applied Science: 80 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	ENGL& 101	5
100+	Level	Mathematics or MATH 173	5

REQUIRED COURSEWORK			
ECED&	105	Intro to Early Childhood Education	5
ECED&	107	Health, Nutrition and Safety	5
EDUC&	115	Child Development	5
ECED&	120	Practicum – Nurturing Relationships *	2
EDUC&	130	Guiding Behavior	3
EDUC&	150	Child, Family and Community	3
ECED&	160	Curriculum Development	5
ECED&	170	Environments for Young Children	3
ECED&	180	Language & Literacy Development	3
ECED&	190	Observation and Assessment	3
EDUC&	203	Exceptional Child *	3
ECE	204	Early Childhood Practicum II *	2
ECE	207	Professionalism *	5
ECE	210	Early Childhood Practicum III *	2
ECE	211	Emotional and Social Development	3
ECE	212	Cognitive Development *	5
ECE	213	Creative Experience-Art & Movement	5
Choose one		ECED&132, ECED& 134, ECED& 136, ECED& 139	3

*A 2.0 is required in each key assessment course to meet the 5 levels of proficiency.

State Early Childhood Education Certificate: 47 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	ENGL& 101	5
100+	Level	Mathematics or MATH 173	5

REQUIRED COURSEWORK			
ECED&	105	Introduction to Early Childhood Education	5
ECED&	107	Health, Nutrition, and Safety	5
EDUC&	115	Child Development	5
ECED&	120	Practicum – Nurturing Relationships	2
EDUC&	130	Guiding Behavior	3
EDUC&	150	Child, Family, and Community	3
ECED&	160	Curriculum Development	5
ECED&	170	Environments for Young Children	3
ECED&	180	Language and Literacy Development	3
ECED&	190	Observation and Assessment	3

State Short Early Childhood Education Certificate of Specialization - General: 20 Credits

REQUIRED COURSEWORK			
ECED&	105	Introduction to Early Childhood Education	5
ECED&	107	Health, Nutrition, and Safety	5
EDUC&	115	Child Development	5
ECED&	120	Practicum - Nurturing Relationships	2
EDUC&	130	Guiding Behavior	3

State Short Early Childhood Education Certificate of Specialization – Infant/Toddler Care: 20 Credits

REQUIRED COURSEWORK

ECED&	105	Introduction to Early Childhood Education	5
ECED&	107	Health, Nutrition, and Safety	5
EDUC&	115	Child Development	5
ECED&	120	Practicum - Nurturing Relationships	2
ECED&	132	Infant/Toddler Care	3

State Short Early Childhood Education Certificate of Specialization – School Age Care: 20 Credits

REQUIRED COURSEWORK

ECED&	105	Introduction to Early Childhood Education	5
ECED&	107	Health, Nutrition, and Safety	5
EDUC&	115	Child Development	5
ECED&	120	Practicum - Nurturing Relationships	2
EDUC&	136	School Age Care	3

State Short Early Childhood Education Certificate of Specialization – Family Child Care: 20 Credits

REQUIRED COURSEWORK

ECED&	105	Introduction to Early Childhood Education	5
ECED&	107	Health, Nutrition, and Safety	5
EDUC&	115	Child Development	5
ECED&	120	Practicum - Nurturing Relationships	2
ECED&	134	Family Child Care	3

State Short Early Childhood Education Certificate of Specialization – Administration: 20 Credits

REQUIRED COURSEWORK

ECED&	105	Introduction to Early Childhood Education	5
ECED&	107	Health, Nutrition, and Safety	5
EDUC&	115	Child Development	5
ECED&	120	Practicum - Nurturing Relationships	2
ECED&	139	Administration of EL	3

State Initial Early Childhood Education Certificate: 12 Credits

REQUIRED COURSEWORK

ECED&	105	Introduction to Early Childhood Education	5
ECED&	107	Health, Nutrition, and Safety	5
ECED&	120	Practicum – Nurturing Relationships	2

Electrical Construction

www.bates.ctc.edu/Electrical

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 receiving an ELO1 license should consult with career advisors to ensure enrollment in the appropriate program.

FACULTY

Jim Androy, Dave Leenhouts, Jeff Llapitan

Associate in Applied Science: 120-158 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ELCON	101	Introduction to Electrical Construction	3
ELCON	102	Applied Physical Science	5
ELCON	103	Hand and Power Tools	4
ELCON	104	Electrical Service Installation	4
ELCON	105	Electrical Components	4
ELCON	106	Introduction to Residential Wiring	3
ELCON	107	National Electric Code	4
ELCON	108	NFPA 70E Standard	4
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
WBAS	101	Welding Basics	8
ELCON	201	Specialty Tools	4
ELCON	202	Commercial Wiring	3
ELCON	203	Commercial Codes and Regulations	3
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
ELCON	209	Industrial Hazards	3
ELCON	210	Motors and Controllers	4
ELCON	211	Project Estimation	5
ELCON	212	Control Circuits	3
ELCON	213	Motors and Controllers Applications	3
ELCON	214	Transformers	3
ELCON	215	Advanced Motor Controls	3
ELCON	220	Advanced Projects I *	10
ELCON	221	Advanced Projects II *	10
ELCON	222	Advanced Projects III *	10
ELCON	223	Advanced Project s IV*	10

*These courses are available for students who need additional hours in order to meet licensing requirements.

Certificate of Competency: 71 Credits

RESIDENTIAL ELECTRICIAN

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
ELCON	101	INTRODUCTION TO ELECTRICAL CONSTRUCTION	3
ELCON	102	APPLIED PHYSICAL SCIENCE	5
ELCON	103	HAND AND POWER TOOLS	4
ELCON	104	ELECTRICAL SERVICE INSTALLATION	4
ELCON	105	ELECTRICAL COMPONENTS	4
ELCON	106	INTRODUCTION TO RESIDENTIAL WIRING	3
ELCON	107	NATIONAL ELECTRIC CODE	4
ELCON	108	NFPA 70E STANDARD	4
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
ELCON	114	NEW RESIDENTIAL TECHNOLOGIES	4
ELCON	201	SPECIALTY TOOLS	4

ELECTRICAL CONSTRUCTION - Licensure Eligibility

This is a career training program that prepares students to apply to the Southwest Washington Electrical Joint Apprenticeship Training Committee, an organization affiliated with the International Brotherhood of Electrical Workers Local #76. Upon completion of the 3000 hours of instruction, students will be given 4000 hours that will apply toward the ELOA1 license.

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Electrical Engineering Technician

www.bates.ctc.edu/ElectricalEngineering

Bates offers the only program in the region in which students prepare for careers in electrical code application, interior and exterior lighting design, and all aspects of electrical design. Instruction includes all phases of electrical engineering, CAD drafting, and design for commercial buildings. Technician's design and draft electrical power, signal, interior, and exterior lighting systems. They also assist in specification writing and share in on-site construction supervision. Students in this program are encouraged to take the National Institute for Certification in Engineering Technologies (NICET) examinations.

Program Prerequisite: ACCUPLACER test.

Associate in Applied Science - Transfer: 123 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	141	Precalculus I	
		-or-	5
MATH&	142	Precalculus II	
ENGL&	101	English Composition I	5
CMST&	210	Interpersonal Communications	
		-or-	5
CMST&	230	Small Group Communications	
		-or-	
PSYC&	100	General Psychology	
		Humanities or Natural Science Electives (Two Courses)	10
HIST	101	History of Science and Technology, or	

*Transferable CTC commonly numbered humanities distribution course or transferable CTC commonly numbered physics or chemistry course.

ENGINEERING CORE REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimension Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Intro to Engineering Graphics	3

REQUIRED COURSEWORK			CREDITS
ETRIC	114	Fundamentals of Electricity	4
ETRIC	123	Electrical Principles	4
ETRIC	129	Applied Electrical Principles	4
ETRIC	141	National Electrical Code	3
ETRIC	143	Fundamentals of Power Systems	3
ETRIC	144	Codes Applications I	4
ETRIC	145	Technical Communications	3
ETRIC	146	Physics for Engineering	3
ETRIC	171	Electrical Math I	4
ETRIC	172	Electrical Math II	4
ETRIC	204	Essentials of Electrical Systems Design	2
ETRIC	205	Fundamentals of Lighting Systems	3
ETRIC	210	Advanced Power Systems	4
ETRIC	225	Advanced CAD Operations	3
ETRIC	227	Introduction to Commercial Electrical Systems	4
ETRIC	230	Intermediate Electrical System Design	5
ETRIC	234	CAD Design Applications	4
ETRIC	245	Commercial Electrical Design Applications	5
ETRIC	246	Advanced Electrical System Design	5
ETRIC	247	Codes Applications II	5
ETRIC	206	Fundamentals of Low-Voltage Systems	2
ETRIC	242	Fundamentals of Cost Estimating	2
ETRIC	207	Fundamentals of High-Voltage Systems	3

Associate in Applied Science: 113 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	141	Precalculus I	
		-or-	
MATH&	142	Precalculus II	5
ENGL&	101	English Composition I	5
CMST&	210	Interpersonal Communications	5
		-or-	
CMST&	230	Small Group Communications	
		-or-	
PSYC&	100	General Psychology	

ENGINEERING CORE REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimension Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Intro to Engineering Graphics	3

REQUIRED COURSEWORK			CREDITS
ETRIC	114	Fundamentals of Electricity	4
ETRIC	123	Electrical Principles	4
ETRIC	129	Applied Electrical Principles	4
ETRIC	141	National Electrical Code	3
ETRIC	143	Fundamentals of Power Systems	3
ETRIC	144	Codes Applications I	4
ETRIC	145	Technical Communications	3
ETRIC	146	Physics for Engineering	3
ETRIC	171	Electrical Math I	4
ETRIC	172	Electrical Math II	4
ETRIC	204	Essentials of Electrical Systems Design	2
ETRIC	205	Fundamentals of Lighting Systems	3
ETRIC	210	Advanced Power Systems	4
ETRIC	225	Advanced CAD Operations	3
ETRIC	227	Introduction to Commercial Electrical Systems	4
ETRIC	230	Intermediate Electrical System Design	5
ETRIC	234	CAD Design Applications	4
ETRIC	245	Commercial Electrical Design Applications	5
ETRIC	246	Advanced Electrical System Design	5
ETRIC	247	Codes Applications II	5
ETRIC	206	Fundamentals of Low-Voltage Systems	2
ETRIC	242	Fundamentals of Cost Estimating	2
ETRIC	207	Fundamentals of High-Voltage Systems	3

Electronic and Communications Systems Technology

www.bates.ctc.edu/ElectronicCommunications

Students prepare for employment in the electronic and communications industry working to install, repair, test and maintain a wide variety of equipment including radio and mobile communication, avionics, marine electronics, cellular, satellite, as well as other electronic equipment and systems.

Communications technicians may install and maintain structured cable or fiber optic systems to meet the needs of communication services including telephony, data, video, computer, broadcast or wireless networks. Graduates are employed as field or bench technicians with opportunities to work anywhere from an outdoor mountain top repeater station to a comfortable indoor work environment.

Students also prepare for industry certifications and licenses including the Federal Communications Commission, Network Cabling Specialist, Certified Fiber Optic Technician and Certified Electronics Technician. Take charge of your life today and enroll in our Electronic and Communications Systems degree program to launch your career in any one of many high-growth industries with excellent income potential. With a rapidly changing economy, the time is right for you to acquire the specialized skills needed to succeed in today's fast paced world of electronics and communications.

With a degree or certificate in Electronic and Communications Systems, graduates are well-positioned for employment as:

- Fiber Optics Systems Specialist
- Cellular Systems Technician
- Cable Systems Installer
- Data/Voice Network
- Mobile Radio Technician
- Wireless Systems Support
- Electronic Technician
- Telecommunications Specialist

FACULTY

Laura Robertson

Associate in Applied Science: 100 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ECS	101	Introduction to Electronics	2
ECS	102	DC Circuits	5
ETECH	103	AC Circuits	5
ECS	104	Analog Circuits I	2
ECS	105	Analog Circuits II	3
ETECH	105	Digital Circuits	5
ECS	108	CET Certification Preparation	3
ECS	201	Telecommunications Network Cabling Systems	5
ECS	202	Fiber Optics	5
ECS	203	FCC Licensure Prep I	3
ECS	204	FCC Licensure Prep II	5
ECS	205	Wireless/RF Communications	2
ECS	206	Wireless Personal Area Networks	1
ECS	207	Wireless Local Area Networks	2
ECS	208	Wireless Broadband Networks	2
ECS	210	Introduction to RF Communications	2

REQUIRED COURSEWORK (cont'd)			CREDITS
ECS	211	Amplitude Modulation	3
ECS	212	Single Sideband and Frequency Modulation	4
ECS	213	Transmission Lines and Antennas	2
ECS	214	Microwave, Telephony, and Cellular	2
ECS	215	Data and Networking Fundamentals	2
ECS	216	Advanced Communications Principles	2
ECS	249	Job Search and Preparation	3

Students must chose 15 credits from the elective list. 15

Certificate of Competency: 65 Credits
Wireless Voice and Data Communications

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
ECS	101	Introduction to Electronics	2
ECS	102	DC Circuits	5
ETECH	103	AC Circuits	5
ECS	104	Analog Circuits I	2
ECS	105	Analog Circuits II	3
ETECH	105	Digital Circuits	5
ECS	108	CET Certification Preparation	3
ECS	201	Telecommunications Network Cabling Systems	5
ECS	202	Fiber Optics	5
ECS	205	Wireless/RF Communications	2
ECS	206	Wireless Personal Area Networks	1
ECS	207	Wireless Local Area Networks	2
ECS	208	Wireless Broadband Networks	2

Students must choose eight credits from the electives list. 8

ELECTIVES LIST			CREDITS
ECS	230	Telecommunications Fundamentals Lab	2
ECS	231	Radio Communications Lab	3
ECS	232	Microwave Lab Fundamentals	2
ECS	233	Signal Processing Lab	4
ECS	290	Independent Study I	3-5
ECS	291	Independent Study II	3-5
ECS	296	Work-based Learning Experience	1-9
INFO	101	Computer Applications Essentials	5
INFO	104	A+ Essentials	5
INFO	105	A+ Practical	5
CNST	201	Cisco Network Fundamentals	5
CNST	202	Cisco Routing Protocols and Concepts	5

Certificate of Training: 25 Credits
Electronics Technician

ELECTRONICS TECHNICIAN			CREDITS
ECS	101	INTRODUCTION TO ELECTRONICS	2
ECS	102	DC CIRCUITS	5
ETECH	103	AC CIRCUITS	5
ECS	104	ANALOG CIRCUITS I	2
ECS	105	ANALOG CIRCUITS II	3
ETECH	105	DIGITAL CIRCUITS	5
ECS	108	CET CERTIFICATION PREPARATION	3

Electronic Equipment Service Technician

www.bates.ctc.edu/EEST

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.

FACULTY

Art Cutting, Franklin Hsu, Landon Johnson

Associate in Applied Science: 91 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
EEST	101	Safety Principles	3
EEST	102	Applied Math	5
EEST	103	Electronics Principles I	5
EEST	104	DC Electronics	4
EEST	105	AC Electronics	5
EEST	106	Inductors and Capacitors	4
EEST	107	Electronics Principles II	5
EEST	108	Amplifiers and Transistors	4
EEST	109	Electronic Devices	2
EEST	110	Introduction to Programmable Logic Controllers	5
EEST	201	Electronic Principles - Automation	5
EEST	202	Antenna and Satellite Systems	3
EEST	203	Magnetic and Laser Media	3
EEST	204	RF Receivers and Audio Amps	4
EEST	205	Video Projection	1
EEST	206	Emerging Technologies	3
BMST	105	Testing Equipment	5
BMST	106	Soldering	2
BMST	107	Schematics	3
BMST	109	Applied Service I	3
BMST	110	Applied Service II	2

Electronics Technician

www.bates.ctc.edu/ElectronicsTech

Successful completion of coursework in the electronics technician program qualifies graduates to use precision test equipment and hand tools to install, maintain, test, and repair electronic equipment for a broad range of careers, including manufacturing, communications, information technologies and computers, electronic security, avionics, and defense. Students also prepare for Certified Electronic Technician (CET) testing.

Note: All credits earned in the Electronics Technician program may be applied to fulfill requirements for a degree in Computer Network Systems Technician or Electronic and Communication Systems Technology programs at Bates Technical College.

FACULTY
David Skeen

Certificate of Training: 30 Credits

REQUIRED COURSEWORK			CREDITS
ECS	101	Introduction to Electronics	2
ECS	102	DC Circuits	5
ETECH	103	AC Circuits	5
ECS	104	Analog Circuits I	2
ECS	105	Analog Circuits II	3
ETECH	105	Digital Circuits	5
ETECH	106	Microcontrollers	5
ECS	108	CET Certification Preparation	3

Facilities Maintenance Engineer

www.bates.ctc.edu/FME

Students prepare for careers in the building care and maintenance industry, including boiler operator, building repairer, facilities maintenance engineer and custodian in industrial and office buildings, hotels, schools, and government agencies. 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. This is a pre-apprenticeship program for the Western Washington Operating Engineers Facilities Custodial Services Apprenticeship Committee and the Western Washington Stationary Engineers Apprenticeship Committee. The program also provides extended learning opportunities for persons previously or currently employed in these or other related professions.

FACULTY
Dale Trombley

Associate in Applied Science: 120 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			
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
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
FACM	111	Building Maintenance and Repair Methods	5
FACM	112	Basic Refrigeration	4
FACM	113	Introduction to Building Maintenance	3
FACM	121	Grounds Keeping	5
FACM	122	HVAC Systems	4
FACM	222	Introduction to Remodeling	4
FACM	221	Small Business Planning	3
FACM	230	Computers in Industry	2
FACM	231	Computer Applications	4
FACM	140	Boiler Operations and Certification	12
FACM	144	Advanced Boiler Operations	5
FACM	143	Advanced Projects	10
WBAS	101	Welding Basics	8

Certificate of Competency: 84-87 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
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
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
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

STUDENTS MUST CHOOSE ONE OF THE FOLLOWING OPTIONS:

Option A:

FACM	112	Basic Refrigeration	4
FACM	123	HVAC Systems II	4
FACM	221	Small Business Planning	3
FACM	230	Computers in Industry	2
FACM	231	Computer Applications	4

Option B:

FACM	140	Boiler Operations and Certification	12
FACM	144	Advanced Boiler Operations	5

Option C: Work-based Learning

FACM	143	Advanced Projects	10
WBAS	101	Welding Basics	8

BOILER OPERATIONS, Certificate of Training: 12 Credits

REQUIRED COURSEWORK			CREDITS
FACM	140	Boiler Operations and Certification	12

BUILDING CARE AND MAINTENANCE I, Certificate of Training: 18 Credits

REQUIRED COURSEWORK			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

MAINTENANCE TECHNICIAN I, Certificate of Training: 18 Credits

REQUIRED COURSEWORK			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

BUILDING CARE AND MAINTENANCE II, Certificate of Training: 17 Credits

REQUIRED COURSEWORK			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

MAINTENANCE TECHNICIAN II, Certificate of Training: 17 Credits

REQUIRED COURSEWORK			CREDITS
FACM	112	Basic Refrigeration	4
FACM	123	HVAC Systems II	4
FACM	221	Small Business Planning	3
FACM	230	Computers in Industry	2
FACM	231	Computer Applications	4

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Fire Protection Engineering Technology

www.bates.ctc.edu/FireProtection

Fire protection engineering technicians design and service fire sprinklers, fire alarms, and other types of in-place detection and suppression systems. The program is supplemented by preparation for NICET examinations, enabling students to choose from three career paths: Automatic Sprinkler Layout, Fire Alarm/Suppression Systems Layout, and Inspection, Testing, and Maintenance.

Associate in Applied Science-Transfer: 119 Credits

GENERAL EDUCATION REQUIREMENTS (AAS-T Degree)			CREDITS
MATH&	146	Introduction to Statistics	5
ENGL&	101	English Composition	5
CMST&	230	Small Group Communication	5
Humanities or Natural Science Electives (Two courses)*			10

*Transferable CTC commonly numbered humanities distribution courses, or transferrable CTC commonly numbered physics or chemistry courses

An AAS-T Degree is directly transferable by an articulation agreement with The Evergreen State College. A transferring student will enter The Evergreen State College as an upper classman but will primarily enroll in lower division, general education coursework. Upon completion the student will be eligible for a Bachelors of Technology Degree

GENERAL EDUCATION REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimensional Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Introduction to Engineering Graphics	3

REQUIRED COURSEWORK			CREDITS
FPET	101	Introduction to Fire Protection Engineering	3
FPET	103	Research Methods	5
FPET	107	Alarm and Suppression System Design	5
FPET	108	Applied Math and Fire Science I	2
FPET	112	Sprinkler Design I	5
FPET	114	Inspection and Testing	3
FPET	117	Fire Protection Project/Applications I	3
FPET	118	Applied Math and Fire Science II	2
FPET	119	Applied Math and Fire Science III	2
FPET	120	Fire Protection Project/Applications II	3
FPET	122	Building Construction	4
FPET	124	Design Seminar	5
FPET	126	Codes and Standards	4
FPET	127	The Practice of Fire Protection	4
FPET	129	Calculations Seminar	5
FPET	200	Codes and Standards – Applications	3
FPET	206	Practical Applications II – Commissioning and Inspections	4
FPET	231	Projects I	3
FPET	232	Projects II	3
FPET	233	Projects III	3
FPET	234	Projects IV	3
FPET	235	Practical Applications I - Design	5

Associate in Applied Science: 109 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	146	Introduction to Statistics	5
ENGL&	101	English Composition I	5
CMST&	230	Small Group Communications	5

REQUIRED ENGINEERING CORE			
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimensional Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Introduction to Engineering Graphics	3

REQUIRED COURSEWORK			
FPET	101	Introduction to Fire Protection Engineering	3
FPET	103	Research Methods	5
FPET	107	Alarm and Suppression System Design	5
FPET	108	Applied Math and Fire Science I	2
FPET	112	Sprinkler Design I	5
FPET	114	Inspection and Testing	3
FPET	117	Fire Protection Project/Applications I	3
FPET	118	Applied Math and Fire Science II	2
FPET	119	Applied Math and Fire Science III	2
FPET	120	Fire Protection Project/Applications II	3
FPET	122	Building Construction	4
FPET	124	Design Seminar	5
FPET	126	Codes and Standards	4
FPET	127	The Practice of Fire Protection	4
FPET	129	Calculations Seminar	5
FPET	200	Codes and Standards – Applications	3
FPET	206	Practical Applications II – Commissioning and Inspections	4
FPET	231	Projects I	3
FPET	232	Projects II	3
FPET	233	Projects III	3
FPET	234	Projects IV	3
FPET	235	Practical Applications I - Design	5

Certificate of Competency: 72 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGL	091	Integrated Reading and Writing II	5
CMST&	230	Small Group Communication	5

REQUIRED COURSEWORK			CREDITS
ENGR	105	CAD – Two Dimension Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Intro to Engineering Graphics	3
FPET	101	Introduction to Fire Protection Engineering	3
FPET	103	Research Methods	5
FPET	107	Alarm and Suppression System Design	5
FPET	108	Applied Math and Fire Science I	2
FPET	112	Sprinkler Design I	5
FPET	114	Inspection and Testing	3
FPET	118	Applied Math and Fire Science II	2
FPET	119	Applied Math and Fire Science III	2
FPET	122	Building Construction	4
FPET	126	Codes and Standards	4
FPET	127	The Practice of Fire Protection	4
FPET	129	Calculations Seminar	5
FPET	200	Codes and Standards – Applications	3

Fire Service

www.bates.ctc.edu/Firefighter

Students prepare for careers as fire fighters, or in closely related occupations that require certification as a firefighter in this program that is accredited 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.

Prerequisites:
1. Applicants must meet predetermined assessment test levels in writing, reading, algebra, mechanical reasoning, and space relations.
2. Applicants are to have good eyesight, normal color vision, and be able to pass a stringent physical examination.
3. Applicants must have a current Washington State driver's license, a good driving history, and no criminal record.
4. Students are required to maintain and show proof of medical/health insurance for the duration of Bates Fire Service educational career.

FACULTY
Chuck Kahler, Darrell Taylor

Associate in Applied Science: 99-105 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
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	Fire Service Applications III	4
FIRES	112	Physical Fitness III	1
FIRES	121	Wildland Firefighter	2
FIRES	123	Fire Service Applications IV	5
FIRES	124	Physical Fitness IV	1
FIRES	125	Fire Vehicle Operations	3
FIRES	201	Rescue Procedures	3
FIRES	202	Advanced Fire Service	3
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	Fire Service Applications VI	4
FIRES	209	Healthcare Provider	1
FIRES	215	Hazardous Materials I	1
FIRES	216	Hazardous Materials II	2

Students must choose either Option I or Option II:

Option I: Advanced Firefighter			CREDITS
Fires	212	Advanced Firefighter	4
Fires	213	Physical Fitness	1
FIRES	222	Advanced Pump Operations	4
FIRES	220	Fire Service Applications VII	4

Option II: Emergency Medical Technician			CREDITS
FIRES	225	Emergency Medical Technician (EMT)	14

Certificate of Training: 15 Credits

FIRE SERVICE SUPERVISION

GENERAL EDUCATION REQUIREMENTS			CREDITS
FIRES	240	Fire Instructor I	3
FIRES	241	Fire Safety Officer	2
FIRES	242	Fire Officer I	5
FIRES	243	Fire Officer II	5

Hearing Instrument Technology

www.bates.ctc.edu/Hearing

A Hearing Aid Specialist is a healthcare professional who is responsible for assessing hearing and providing services to hard of hearing individuals who can benefit from the use of hearing aids. Responsibilities include assessment, counseling, recommendations, and selection, procurement, fitting and follow-up services for patients.

One pathway to licensure requires satisfactory completion of a two year associates of applies sciences in hearing instruments. The applicant must also pass a written state examination and jurisprudence examination administered by the state of Washington

Successful completion of the Hearing Instrument Program fulfills the two year degree requirement. Instruction includes acoustics, hearing instrument sciences, anatomy and physiology of the human auditory system, pathophysiology of the auditory system, psychological aspects of hearing loss, tests of the hearing organ, making impressions of the ear, business aspects of the hearing industry, overview of related fields and medical implants to improve hearing. An in house hearing clinic provides at minimum 260 hours of direct and 260 hours of indirect clinical supervision by a licensed audiologist.

Prerequisites: Applicants must...
Be fully ready to enter into general education courses. This entry requirement may be satisfied by providing official transcripts showing completion of general education courses or by satisfactory completion of placement tests the enable the student to enroll directly into required general education courses.

Prerequisites:
Applicants must be fully ready to enter into general education courses. This entry requirement may be satisfied by providing the registrar with official transcripts showing actual completion of general education courses, or by satisfactory completion of placement tests the enable the student to enroll directly into required general education courses.

FACULTY
Marci Leong, Au.D.

Associate in Applied Science: 109 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
100+ Level	Human Relations	5
100+ Level	Communications	5
100+ Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS	
HEAR	110	INTRO HEARING PROFESSION	60	5
HEAR	120	ANATOMY/ PHYSIOLOGY	60	5
HEAR	131	HEARING AIDS I	70	5
HEAR	111	SAFETY PRACTICES	70	4
HEAR	112	ACOUSTICS	70	5
HEAR	113	HEARING ASSESSMENT I	50	3
HEAR	130	DISORDERS-AUDITORY SYS	60	5
HEAR	121	INSTRUMENTATION	90	5
HEAR	122	HEARING ASSESSMENT II	50	3
HEAR	132	AUDIOMETRIC INTRPRTN I	90	5
HEAR	222	HEARING AIDS II	70	5
HEAR	210	HEARING ASSESSMENT III	60	3
HEAR	213	CLINICAL I	90	3
HEAR	220	HEARING AIDS EVALUATION	90	5
HEAR	221	AUDIOMETRIC INTRPRTN II	90	5
HEAR	211	AURAL REHABILITATION I	60	3
HEAR	212	BUSINESS ASPECTS I	60	5
HEAR	223	CLINICAL II	90	3
HEAR	230	HEARING AID SERV/REPAIR	100	5
HEAR	231	AURAL REHIBILITATION II	80	4
HEAR	232	BUSINESS ASPECTS II	80	4
HEAR	233	CLINICAL III	120	4

Heating, Ventilation, Air Conditioning & Refrigeration Technician

www.bates.ctc.edu/HVAC

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. The program also provides extended learning opportunities for persons previously or currently employed in related professions.

Note: Students are required to pass the Air Conditioning and Refrigeration Institute industry competency exam to complete the program: Two examinations to obtain a degree; one exam to obtain a certificate. Sufficient training is provided to qualify students to take the Environmental Protection Agency CFC certification examination required to work in the industry. A total of 1,100 hours of credit is applied toward the Washington State 06A electrical certificate.

FACULTY

Joe Lyon

Associate in Applied Science: 103 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
HVAC	101	HVAC Fundamentals	3
HVAC	102	Safety	2
HVAC	103	HVAC/R Science	2
HVAC	104	Tools and Equipment	4
HVAC	105	Refrigerant and Refrigeration Systems I	4
HVAC	106	Refrigerant and Refrigeration Systems II	3
HVAC	107	Electrical Systems and Components	5
HVAC	108	Electrical Troubleshooting	3
HVAC	109	Soldering and Brazing Applications	3
HVAC	110	Residential Systems	5
HVAC	111	Light Commercial Systems	5
HVAC	112	Heat Pump Systems	4
HVAC	201	System Design, Sizing, and Layout	4
HVAC	210	Drafting and Blueprint Applications	4
HVAC	211	Commercial Environmental Systems	5
HVAC	212	Chilled Water Systems	2
HVAC	213	Hydronic Heating Systems	2
HVAC	214	Cooling Tower	1
HVAC	215	Thermal Storage	2
HVAC	216	CFC Exam Preparation	1
HVAC	217	Commercial Refrigeration	3
HVAC	218	Installation, Maintenance, and Troubleshooting	2
HVAC	219	AHRI Industry Competency Exam #1	3
HVAC	220	AHRI Industry Competency Exam #2	3
HVAC	221	Industry Math	5

Students must choose one option:

Option A:			CREDITS
HVAC	202	Welding Processes	2
HVAC	203	Hand-held Torch Burning Applications	2
HVAC	204	SMAW (ARC) Applications	2
HVAC	205	GMAW (MIG) applications	2

Option B:			CREDITS
HVAC	206	Basic Metalworking	2
HVAC	207	Basic Layout and Patterns	2
HVAC	208	Fabrication Practices	2
HVAC	209	Air Balance and Duct Sizing	2

HVAC/R Support Technician
Certificate of Competency: 99 Credits

HVAC/R SUPPORT TECHNICIAN GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
HVAC	101	HVAC Fundamentals	3
HVAC	102	Safety	2
HVAC	103	HVAC/R Science	2
HVAC	104	Tools and Equipment	4
HVAC	105	Refrigerant and Refrigeration Systems I	4
HVAC	106	Refrigerant and Refrigeration Systems II	3
HVAC	107	Electrical Systems and Components	5
HVAC	108	Electrical Troubleshooting	3
HVAC	109	Soldering and Brazing Applications	3
HVAC	110	Residential Systems	5
HVAC	111	Light Commercial Systems	5
HVAC	112	Heat Pump Systems	4
HVAC	210	Drafting and Blueprint Applications	4
HVAC	211	Commercial Environmental Systems	5
HVAC	212	Chilled Water Systems	2
HVAC	213	Hydronic Heating Systems	2
HVAC	214	Cooling Tower	1
HVAC	215	Thermal Storage	2
HVAC	216	CFC Exam Preparation	1
HVAC	217	Commercial Refrigeration	3
HVAC	218	Installation, Maintenance, and Troubleshooting	2
HVAC	219	AHRI Industry Competency Exam #1	3
HVAC	220	AHRI Industry Competency Exam #2	3
HVAC	221	Industry Math	5

Students must choose one option:

Option A:			
HVAC	202	Welding Processes	2
HVAC	203	Hand-held Torch Burning Applications	2
HVAC	204	SMAW (ARC) Applications	2
HVAC	205	GMAW (MIG) applications	2

Option B:			
HVAC	206	Basic Metalworking	2
HVAC	207	Basic Layout and Patterns	2
HVAC	208	Fabrication Practices	2
HVAC	209	Air Balance and Duct Sizing	2

Industrial Electronics and Robotics Technician

www.bates.ctc.edu/IERT

In the Industrial Electronics and Robotics Technician program, students learn to install, diagnose, maintain, modify, test, and calibrate electronic, electrical, and mechanical systems used in manufacturing support equipment and production machinery, including precision machine tools (CNC) and industrial robots.

The program consists of a certificate of training in Basic Electricity, a one-year Electrical Technician certificate, and a two-year Industrial Technology degree that prepares students for entry into electrical apprenticeships.

The program features equipment and software from industry leaders such as Allen Bradley, Rockwell Automation, FANUC Robotics, Bosch, Siemens, Famic Technologies, and National Instruments. Focus is on the intelligent control of machines and processes using programmable logic controllers (PLCs), embedded controllers, variable frequency drives (VFDs), industrial networks, sensors & transducers, instrumentation and robotics. The electrical curriculum is based on guidelines from the National Joint Apprenticeship Training Committee (NJATC) for electrical trades. The program also offers in-depth career training for those interested in becoming an electronics technician in the manufacturing, scientific, aerospace, or civilian military industries.

FACULTY
Tom Newman

Associate in Applied Science: 118 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Mathematics	5
100+	Level	Communications	5

REQUIRED COURSEWORK			
IERT	101	INTRODUCTION TO INDUSTRIAL ROBOTS	5
IERT	104	BASIC BLUEPRINT READING	3
IERT	106	INTRODUCTION TO NUMERIC CONTROLS	3
IERT	108	BASIC PRECISION MEASURING TOOLS	1
IERT	110	ELECTRICITY AND MAGNETISM	2
IERT	115	DC CIRCUIT ANALYSIS	5
IERT	118	FLUID POWER	5
IERT	120	ALTERNATING CURRENT	2
IERT	125	AC CIRCUIT ANALYSIS	5
IERT	126	ANALOG ELECTRONICS	5
IERT	128	POLYPHASE AC POWER GENERATION AND DISTRIBUTION	5
IERT	135	MECHANICS	3
IERT	140	MOTORS AND CONTROL SYSTEMS	5
IERT	145	CONSTRUCTION PRACTICES, THE NEC, AND UL GUIDES	5
IERT	212	DIGITAL ELECTRONICS	5
IERT	215	PROGRAMMABLE LOGIC CONTROLLERS	5
IERT	220	ALLEN BRADLEY PLCS	5
IERT	225	SENSORS AND TRANSDUCERS	3
IERT	230	PROGRAMMING METHODOLOGIES	2
IERT	231	PLC PROGRAMMING PROJECTS	5
IERT	238	EMBEDDED CONTROLLERS	5
IERT	240	INDUSTRIAL ROBOTICS	5
IERT	255	INSTRUMENTATION	5
IERT	XXX	ELECTIVES	10

Certificate of Competency: 57 Credits

ELECTRICAL TECHNICIAN

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
IERT	110	Electricity and Magnetism	2
IERT	115	DC Circuit Analysis	5
IERT	118	Fluid Power	5
IERT	120	Alternating Current	2
IERT	125	AC Circuit Analysis	5
IERT	126	Analog Electronics	5
IERT	128	Polyphase AC Power Generation and Distribution	5
IERT	135	Mechanics	3
IERT	140	Motors and Control Systems	5
IERT	145	Construction Practices, the NEC, and UL Guides	5

Certificate of Training: 14 Credits

BASIC ELECTRICITY

GENERAL EDUCATION REQUIREMENTS			CREDITS
IERT	110	Electricity and Magnetism	2
IERT	115	DC Circuit Analysis	5
IERT	120	Alternating Current	2
IERT	125	AC Circuit Analysis	5

Information Technology Specialist

www.bates.ctc.edu/ITSpecialist

Information technologies 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 PC and network support with emphasis on both practical experience and certification preparation, including LAN/WAN administrator, network system support specialist. Students are encouraged to obtain Microsoft, Cisco, and CompTIA, certifications. Possible certifications students can obtain include, A+, MCITP, MCP, MCDST, MCSE, and MCSA.

Note: Bates Technical College is an official Cisco Networking Academy.

FACULTY

Emmett Peterson

Associate in Applied Science: 112 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			CREDITS
INFO	101	Computer Applications Essentials	5
INFO	102	Fundamentals of Information Technology	4
INFO	103	Internet Applications	5
INFO	104	A+ Essentials	5
INFO	105	A+ Practical	5
INFO	106	Electronics Basics	5
INFO	107	Structured Cabling	3
INFO	110	Emerging Technologies	5
INFO	111	Practical Applications	5
CNST	206	MS Client Operating Systems	5
CNST	207	Network Infrastructure	5
CNST	209	Directory Services	5
CNST	210	Network Security	5
CNST	201	Cisco Network Fundamentals	5
CNST	202	Cisco Routing Protocols and Concepts	5
CNST	205	Fundamentals of Linux	5

Students must chose 20 credits from the electives list.

ELECTIVES LIST			CREDITS
CNST	203	Cisco LAN Switching and Wireless	5
CNST	204	Cisco – Accessing the WAN	5
INFO	108	Project Management	5
INFO	292	Independent Projects	1-5
ECS	201	Telecommunications Network Cabling	5
ECS	202	Fiber Optics	5
ECS	249	Job Search and Preparation	3

Machinist

www.bates.ctc.edu/Machinist

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. 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.

FACULTY

Steve Rose, Dan Sanford

Associate in Applied Science: 111 Credits

REQUIRED COURSEWORK			CREDITS
ENGL&	100+	English Composition	5
HREL	100+	Human Relations	5
REQUIRED CORE COURSES			
MACH	116	Introduction to Machining Technology	3
MACH	117	Measurement Applications	5
MACH	118	Geometric Dimensioning and Tolerancing	5
MACH	119	Blueprint Reading	5
MACH	120	Machine Shop Mathematics II	5
REQUIRED COURSEWORK			
MACH	111	Machine Shop Mathematics I	2
MACH	112	Industrial Safety I	3
MACH	114	Lathe Operations I	4
MACH	121	Lathe Operations II	4
MACH	122	Grinding I	2
MACH	123	Machining I	2
MACH	124	Milling I	2
MACH	131	Industrial Safety II	2
MACH	133	Milling Operations II	3
MACH	134	Advanced Machining I	4
MACH	137	Advanced Machining II	2
MACH	139	Grinding II	2
MACH	142	Advanced Machine Shop Applications	8
		OR	
WBAS	101	Welding Basics	
MACH	213	Advanced Machining III	5
MACH	222	CNC Lathe	1
MACH	225	CNC Lathe II	3
MACH	230	CNC Mill I	4
MACH	224	Computer-Aided Manufacturing (CAM)	5
		OR	
CNCM	215	Computer-Aided Manufacturing(CAM)	
MACH	232	Advanced CNC Machining I	5
MACH	233	Advanced CNC Machining II	5
MACH	234	CNC Milling II	5
CNCM	111	Intro to CNC Tech (CNC)	2
CNCM	213	Aerospace Print Reading (CNC)	3

Certificate of Competency: 78 Credits

MANUAL MACHINING

REQUIRED COURSEWORK			CREDITS
ENGL&	90+	English Composition	5
HREL	90+	Human Relations	5
REQUIRED CORE COURSES			
MACH	116	Introduction to Machining Technology	3
MACH	117	Measurement Applications	5
MACH	118	Geometric Dimensioning and Tolerancing	5
MACH	119	Blueprint Reading	5
MACH	120	Machine Shop Mathematics II	5
REQUIRED COURSEWORK			
MACH	111	Machine Shop Mathematics I	2
MACH	112	Industrial Safety I	3
MACH	114	Lathe Operations I	4
MACH	121	Lathe Operations II	4
MACH	122	Grinding I	2
MACH	123	Machining I	2
MACH	124	Milling I	2
MACH	131	Industrial Safety II	2
MACH	133	Milling Operations II	3
MACH	134	Advanced Machining I	4
MACH	137	Advanced Machining II	2
MACH	139	Grinding II	2
MACH	142	Advanced Machine Shop Applications	8
		OR	
WBAS	101	Welding Basics	
MACH	213	Advanced Machining III	5

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Marketing & Business Management

www.bates.ctc.edu/Marketing

Students prepare for careers in sales, advertising, merchandising, customer service, market research, business and management, and public relations. When available, work-based learning activities provide students with the opportunity to work in Puget Sound businesses. Major projects allow students to apply competencies such as preparing formal business plans, performing research studies, and developing advertising campaigns. This program also provides extended learning opportunities to persons previously or currently employed in these and related professions.

FACULTY

Kathy Brock

Associate in Applied Science: 105 - 108 - 110 Credits

Associate of Applied Science - Transfer: 110 - 113 - 115 Credits

GENERAL EDUCATION REQUIREMENTS (AAS Degree)			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

GENERAL EDUCATION REQUIREMENTS (AAS-T Degree)			
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5
100+	Level	Humanities/Social Sciences	5

REQUIRED COURSEWORK			
MARK	101	Marketing Principles	5
MARK	102	Customer Service	5
MARK	103	Written Business Communication	3
MARK	104	Business Negotiations and Collaboration	3
MARK	105	Information Research and Acquisition	1
MARK	106	Business Concepts	5
MARK	107	Cross Cultural Communications	5
MARK	108	International Trade Practices	5
MARK	109	Economics: A Marketing Perspective	5
MARK	110	Principles of Management and Supervision	5
MARK	111	Cyber Marketing/E-Commerce	5
MARK	112	Business Law	5
MARK	113	Accounting Principles	5

Students must choose one option:

Option A - Marketing			
MARK	121	Branding/Corporate Identity	2
MARK	122	Advertising: Creation and Planning	4
MARK	123	Business Software Applications	3
MARK	124	Sales Strategies and Consumer Psychology	5
MARK	125	Business and Marketing Presentation Skills	3
MARK	126	Planning and Leadership	5
MARK	127	Public Relations	3
MARK	128	Marketing Research and Forecasting	3
MARK	129	Advanced Marketing Projects	5

Option B: Business Management			CREDITS
MARK	201	Introduction To Leadership Skills and Ethics	3
MARK	202	Introduction To Strategic Marketing	4
MARK	203	Introduction To Business Accounting/Finance	5
MARK	204	Introduction To Presentation and Facilitation Skills	3
MARK	205	Advanced Business Projects	5
MARK	206	Teaming for Success	3
MARK	207	Introduction To Managing Change	3
MARK	208	Achieving Results Through Influence	3
MARK	209	Entrepreneurial Concepts	5
MARK	210	Introduction to Project Management	4

Option C: International Commerce			
MARK	221	International Business Law	2
MARK	222	Supply Chain Operations	5
MARK	223	Supply Chain Risk Management	2
MARK	224	Supply Chain Intermediaries	5
MARK	225	International Marketing	3
MARK	226	Offshore Procurement Process	2
MARK	227	International Market Research and Planning	3
MARK	228	Global Trade Financing	5
MARK	229	International Payment, Credit, and Collections	5
MARK	230	Advanced Projects - Marketing Plan Implementation	4

Mechanical Engineering

www.bates.ctc.edu/MechanicalEngineer

Students prepare for careers as engineering technicians with an emphasis on mechanical systems. Instruction focuses on computer-aided drafting and design (CADD). Students have opportunities to work on community and college projects that may include patent application drawings and detailed machine shop production drawings. Extended learning opportunities are available with industry partners

Program Prerequisite: COMPASS Pre-algebra 55 and Reading 80 or approved transition from basic studies

FACULTY
Curt Meyer

Associate in Applied Science - Transfer: 118 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	141	Precalculus I	
		-or-	5
MATH&	142	Precalculus II	
ENGL&	101	English Composition I	5
CMST&	210	Interpersonal Communications	
		-or-	5
CMST&	230	Small Group Communications	
		-or-	
PSYC&	100	General Psychology	
		Humanities or Natural Science Electives (Two Courses)	10
HIST	101	History of Science and Technology, or	

*Transferable CTC commonly numbered humanities distribution course or transferable CTC commonly numbered physics or chemistry course.

ENGINEERING CORE REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimension Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Intro to Engineering Graphics	3

REQUIRED COURSEWORK

MET	105	Orthographic Projections	7
MET	106	Sectional Views	5
MET	107	Auxiliary Views	5
MET	108	Principles of Dimensioning	4
MET	110	Dimensioning Practices	7
MET	111	Geometric Dimensioning and Tolerancing	5
MET	112	Basic Geometric Constructions	6
MET	114	Introduction to Sketching	5
MET	214	Engineering Projects I	7
MET	215	Axonometric and Oblique Projections	5
MET	216	Engineering Projects II	7

ELECTIVE COURSEWORK OPTIONS:
(Students must choose one option listed below.)
Option A

MET	201	Machine Shop Drawings	4
MET	202	Threads, Fasteners, and Springs	3
MET	203	Gears	4
MET	204	Cams	4

Option B

MET	205	Pneumatic/Hydraulic Symbols	3
MET	206	Piping and Instrumentation Drawings	4
MET	207	Valve Sections	4
MET	208	Pump Sections	4

Option C

MET	209	Production Drawings	4
MET	210	Duct Fitting Symbols	3
MET	211	Flat Pattern Development	5
MET	212	Basic Air Flow Systems	3

Associate in Applied Science: 108 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	141	Precalculus I	
		-or-	5
MATH&	142	Precalculus II	
ENGL&	101	English Composition I	5
CMST&	210	Interpersonal Communications	
		-or-	5
CMST&	230	Small Group Communications	
		-or-	
PSYC&	100	General Psychology	

ENGINEERING CORE REQUIREMENTS			CREDITS
AMATH	170	Engineering Foundational Mathematics	5
ENGR	105	CAD – Two Dimension Fundamentals	5
ENGR	106	Intro to Engineering Technology	2
ENGR	107	Intro to Engineering Graphics	3

REQUIRED COURSEWORK

MET	105	Orthographic Projections	7
MET	106	Sectional Views	5
MET	107	Auxiliary Views	5
MET	108	Principles of Dimensioning	4
MET	110	Dimensioning Practices	7
MET	111	Geometric Dimensioning and Tolerancing	5
MET	112	Basic Geometric Constructions	6
MET	114	Introduction to Sketching	5
MET	214	Engineering Projects I	7
MET	215	Axonometric and Oblique Projections	5
MET	216	Engineering Projects II	7

ELECTIVE COURSEWORK OPTIONS:
(Students must choose one option listed below.)
Option A

MET	201	Machine Shop Drawings	4
MET	202	Threads, Fasteners, and Springs	3
MET	203	Gears	4
MET	204	Cams	4

Option B

MET	205	Pneumatic/Hydraulic Symbols	3
MET	206	Piping and Instrumentation Drawings	4
MET	207	Valve Sections	4
MET	208	Pump Sections	4

Option C

MET	209	Production Drawings	4
MET	210	Duct Fitting Symbols	3
MET	211	Flat Pattern Development	5
MET	212	Basic Air Flow Systems	3

Occupational Therapy Assistant

www.bates.ctc.edu/OTA

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, out-patient clinics, rehabilitation centers, mental health centers, assisted living and nursing care facilities, and school systems.

Prerequisites:

1. Be at least 18 years of age and have proof of high school completion or GED
2. Completion of the OTA Foundation courses with a grade of 3.0 or better prior to program entry.
3. Completion of the OTA program enrollment application.

PROGRAM DIRECTOR
Marge Luthman

FACULTY
Alicia Lancaster, Andrew Min

Associate in Applied Science: 120 Credits

REQUIRED FOUNDATION COURSEWORK			CREDITS
ENGL&	100+	English Composition course	5
MATH	100+	Mathematics	5
PSYC&	200	Lifespan Psychology	5
BIOL	170	Medical Terminology	2
BIOL&	175	Survey of A&P	5

(These courses must be completed with a minimum grade of 3.0 before enrolling in the OTA core coursework.)

REQUIRED CORE COURSEWORK			CREDITS
OTA	102	Health and Wellness and the OTA	3
OTA	103	Functional Movement	5
OTA	104	Therapeutic Use of Self	5
OTA	105	Nervous System Function	4
OTA	106	Therapeutic Activities and Performance I	5
OTA	107	Developmental Disabilities - Treatment and Applications	5
OTA	108	Applied Experience I-A	1
OTA	109	Adaptive Technologies	5
OTA	110	Documentation Skills	3
OTA	111	Introduction to Occupational Therapy	5
OTA	201	Therapeutic Activities and Performance II	5
OTA	202	Psychosocial Dysfunctions: Treatment and Applications	8
OTA	203	Applied Experience – I-B	1
OTA	204	Seminar – Applied Mental Health	1
OTA	210	Physical Disabilities: Treatment and Applications	8
OTA	212	Applied Experience – I-C	1
OTA	213	Seminar – Applied Physical Rehabilitation	1
OTA	220	Clinical Fieldwork Level II – Rotation A	11
OTA	221	Clinical Fieldwork Level II – Seminar A	1
OTA	222	Clinical Fieldwork Level II – Rotation B	11
OTA	223	Clinical Fieldwork Level II – Seminar B	1
OTA	231	OTA and Special Settings	4
OTA	232	Professional Issues for the OTA	4

The Occupational Therapy Assistant program at Bates is accredited with the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), www.acoteonline.org, located at 4720 Montgomery Lane, Suite 200, Bethesda, MD 20814-3449. ACOTE's telephone number is 301.652.2682.

Our graduates are eligible to sit for the national certification examination for the occupational therapy assistant administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of this exam, the individual will be a certified occupational therapy assistant (COTA). In addition, most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certificate Examination.

Note that a felony conviction may affect a graduate's ability to sit for the NBCOT certification examination or attain state licensure.

Power Sports & Equipment Technology

www.bates.ctc.edu/PowerSports

Students in the program prepare for careers in the power sports and power equipment industries. Technicians in these areas maintain and repair a variety of two- and four-cycle engines, power trains, and chassis.

Power Sports: Maintenance and repair of power sports vehicles such as motorcycles, sport utility vehicles, all-terrain vehicles, personal watercraft, and boats for employment in dealerships, independent repair shops, and self-employment.
Power Equipment: Maintenance and repair of outdoor power equipment, including lawn and garden equipment and light industrial/commercial equipment. Employment may be in lawn and garden stores, department stores, rental companies, landscaping companies, golf courses, fleet repair facilities, government agencies, and self-employment.

FACULTY
Matthew Spitzer

Associate in Applied Science: 106 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5

REQUIRED COURSEWORK			
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
POW	120	Engine Failure Analysis	5
POW	121	Engine Repair Methods	5
POW	123	Carburetor Service and Repair	5
POW	140	Fundamentals of Electricity	5
POW	141	Electrical Starting and Charging Systems	5
POW	142	Ignition Systems	5
POW	150	Transmission Service and Repair	5
POW	151	Drivetrain Service and Repair	5
POW	154	Computerized System Basics	3
POW	155	Electronic Fuel Injection	5
POW	156	Exhaust Gas Analysis	5
POW	161	Chassis Service	5
POW	162	Service Projects	15
	OR		
WBAS	101	Welding	8
	AND		
POW	162	Service Projects	7
	OR		
POW	296	Work-based Learning	15

Certificate of Competency: 76 Credits

Engine and Electrical
FALL START

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
POW	101	Introduction to Power Sports	3
POW	102	Power Sports Maintenance	5
POW	105	Brakes Service and Repair	5
POW	106	Tires Service and Repair	5
POW	120	Engine Failure Analysis	5
POW	121	Engine Repair Methods	5
POW	123	Carburetor Service and Repair	5
POW	140	Electrical Basics	5
POW	141	Electrical Starter and Charging Systems	5
POW	142	Ignition Systems	5
POW	154	Computerized System Basics	3
POW	155	Electronic Fuel Injection	5
POW	156	Exhaust Gas Analysis	5

Certificate of Competency: 76 Credits

Chassis and Electrical
SPRING START

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
POW	101	Introduction to Power Sports	3
POW	102	Power Sports Maintenance	5
POW	105	Brakes Service and Maintenance	5
POW	106	Tires Service and Maintenance	5
POW	140	Fundamentals of Electricity	5
POW	141	Electrical Starter and Charging Systems	5
POW	142	Ignition Systems	5
POW	151	Transmission Service and Repair	5
POW	152	Drive Train Service and Repair	5
POW	154	Computerized System Basics	3
POW	155	Electronic Fuel Injection	5
POW	156	Exhaust Gas Analysis	5
POW	161	Chassis Service	5

Certificate of Training: 15 Credits

Electrical
WINTER QUARTER ONLY

REQUIRED COURSEWORK			CREDITS
POW	140	Fundamentals of Electricity	5
POW	141	Electrical Starter and Charging Systems	5
POW	142	Ignition Systems	5

Practical Nurse

www.bates.ctc.edu/PracticalNurse

Students prepare for careers as licensed practical nurses in a variety of healthcare settings. Clinical activities are an integral part of this program which is approved by the Washington Nursing Care Quality Assurance Commission. During the clinical phase, students demonstrate nursing competencies under supervision at clinical sites and improve skills by working with a healthcare professional in a preceptorship role. Graduates are required to pass the Washington State Practical Nursing licensing exam to practice as licensed practical nurses in Washington State. Prior to licensing exam, applicant will need to provide proof of high school graduation or equivalent.

Prerequisites: Applicants must...

1. Pass a clear National Criminal background check covering Wash. state.
2. Obtain medical and dental clearance.
3. Pass a drug screen.
4. Provide documentary evidence of current immunizations, medical insurance (illness and injury), and Health Care Provider CPR.
5. Possess current liability insurance coverage in the amount of $1 million.
6. AIDS/HIV Training - seven hours.

Program Director
Dianne Nauer

FACULTY
Various

Associate in Applied Science: 110-119 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
(These courses must be completed before enrolling in the PNUR coursework.)			
BIOL&	241	Human A & P I	5
BIOL&	242	Human A & P 2	5
BIOL&	260	Microbiology	5
CHEM&	121	Intro to Chemistry	5
CMST&	210	Interpersonal Communications	5
CTNA	101	Nursing Assistant Certified *	5
ENGL&	101	English Composition	5
PSYC&	200	Lifespan Psychology	5
MATH&	146	Introduction to Statistics	5
NUTR&	101	Nutrition	5
Nursing I			
(All PNUR coursework must be completed with a 3.2 grade or better.)			
PNUR	201	Nursing Math/Pharmacology	4
PNUR	202	Personal Vocational Relationships	4
PNUR	203	Nursing Fundamentals I/Sim I	7
NURSING II			
PNUR	220	Nursing Fundamentals II/Sim II	4
PNUR	221	Med/Surg I	7
PNUR	222	Clinical I/Sim III/Clinical Math	4
NURSING III			
PNUR	230	Med/Surg II	5
PNUR	231	Newborn/Maternal/Reproductive Nursing	2
PNUR	232	Pediatrics	2
PNUR	233	Clinical II/Sim IV	3
PNUR	234	Advanced Clinical II/Sim V/Clinical Math	3
		Electives	
PNUR	233R	Independent Project	3
PNUR	234R	Independent Project	3
NURSING IV			
PNUR	240	Med/Surg III	7
PNUR	241	Clinical III /Sim VI/ Clinical Math	4
PNUR	242	Preceptor Experience	4
		Elective	
PNUR	241R	Independent Project	3

*** This course may be waived with active proof of NAC license.**

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Sheet Metal Technology

www.bates.ctc.edu/SheetMetal

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 or residential apprenticeship program. Students will be placed at the end of the out of work list. Prior educational credits are recognized upon entrance into the apprenticeship.

FACULTY

Steve MacKay

Associate in Applied Science: 115 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
100+	Level	Human Relations	5
100+	Level	Communications	5
100+	Level	Mathematics	5
REQUIRED COURSEWORK			
SHME	101	Introduction to Sheet Metal Technology	3
SHME	103	Fittings Fabrication I	7
SHME	105	Materials Technology	3
SHME	107	Applied Math	5
SHME	112	Fittings Fabrication II	8
SHME	150	Hand Tools and Machines	5
SHME	151	Health and Safety	4
SHME	152	Drafting I	6
SHME	153	Architectural Sheet Metal	5
SHME	203	Blueprint Reading Applications	5
SHME	206	Complex Components Fabrication	5
SHME	213	Introduction to Blueprint Reading	4
SHME	217	Energy Codes	2
SHME	250	Drafting II	7
SHME	251	Duct Design/Air Balancing - Concepts	5
SHME	252	Field Installation I	6
SHME	253	Field Installation II	6
SHME	254	Commercial Projects	6
WBAS	101	Welding Basics	8

Certificate of Competency: 115 Credits

SHEET METAL TECHNOLOGY

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			
SHME	101	Introduction to Sheet Metal Technology	3
SHME	103	Fittings Fabrication I	7
SHME	105	Materials Technology	3
SHME	107	Applied Math	5
SHME	112	Fittings Fabrication II	8
SHME	150	Hand Tools and Machines	5
SHME	151	Health and Safety	4
SHME	152	Drafting I	6
SHME	153	Architectural Sheet Metal	5
SHME	203	Blueprint Reading Applications	5
SHME	206	Complex Components Fabrication	5
SHME	213	Introduction to Blueprint Reading	4
SHME	217	Energy Codes	2
SHME	250	Drafting II	7
SHME	251	Duct Design/Air Balancing - Concepts	5
SHME	252	Field Installation I	6
SHME	253	Field Installation II	6
SHME	254	Commercial Projects	6
WBAS	101	Welding Basics	8

Certificate of Competency: 92 Credits

SHEET METAL TECHNICIAN

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5
REQUIRED COURSEWORK			
SHME	101	Introduction to Sheet Metal Technology	3
SHME	103	Fittings Fabrication I	7
SHME	105	Materials Technology	3
SHME	107	Applied Math	5
SHME	112	Fittings Fabrication II	8
SHME	150	Hand Tools and Machines	5
SHME	151	Health and Safety	4
SHME	152	Drafting I	6
SHME	203	Blueprint Reading Applications	5
SHME	213	Introduction to Blueprint Reading	3
SHME	217	Energy Codes	2
SHME	250	Drafting II	7
SHME	251	Duct Design/Air Balancing - Concepts	5
SHME	252	Field Installation I	6
WBAS	101	Welding Basics	8

Sheet Metal Technology (continued)

Certificate of Training: 44 Credits

SHEET METAL PRODUCTION SUPPORT

REQUIRED COURSEWORK			CREDITS
SHME	103	Fittings Fabrication I	7
SHME	105	Materials Technology	3
SHME	107	Applied Math	5
SHME	112	Fittings Fabrication II	8
SHME	150	Hand Tools and Machines	5
SHME	217	Energy Codes	2
SHME	252	Field Installation II	6
WBAS	101	Welding Basics	8

Certificate of Training: 46 Credits

SHEET METAL RESIDENTIAL INSTALLATIONS

REQUIRED COURSEWORK			CREDITS
SHME	120	Introduction to Sheet Metal Technology	3
SHME	150	Hand Tools and Machines	5
SHME	252	Field Installation I	6
SHME	124	Fittings Fabrication I	4
SHME	125	Applied Math	3
SHME	127	Prefabricated Components	2
SHME	128	Material 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	133	Residential Venting Technology	2
SHME	134	Unit Operations	2
SHME	135	Code Principles	2
SHME	136	Gas Piping Technology	2
SHME	137	Duct Design Technology	3
SHME	138	Preventive Maintenance	2

Software Development

www.bates.ctc.edu/SoftwareDevelopment

Instruction in the Software Development program includes designing, coding, and implementing software applications in a variety of programming languages: Unix, SQL, Java, C Sharp, C++. In addition, students build skills in problem-solving, attention to detail, communication and teamwork.

FACULTY

Dan Achman, Judith Graham

Associate in Applied Science - Transfer: 110 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
MATH&	146	Introduction to Stats	5
MATH&	141	Precalculus I	5
ENGL&	101	College Composition	5
		Social Sciences/Communications Studies:	5
SOC&	101	Introduction to Sociology, or	
CMST&	210	Interpersonal Communications, or	
PSYC&	100	General Psychology	
		Humanities	5
ART&	100	Art Appreciation, or	
HIST	101	History of Science and Technology, or	
ASL&	101	American Sign Language I	

REQUIRED COURSEWORK			
CS&	141	Computer Science I - JAVA	5
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL I	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
SOFT	103	Operating Systems	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
SOFT	132	C++	5
SOFT	142	Programming in JAVA II	5
SOFT	204	Open Source Programming	5
SOFT	207	Dynamic Web Pages	5
SOFT	208	Principles of Systems Analysis and Design	5
SOFT	209	Emerging Technologies	5
SOFT	210	Mobile Device Programming	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
SOFT	290	Capstone Project	5

Associate in Applied Science: 110 Credits

GENERAL EDUCATION REQUIREMENTS			CREDITS
		Human Relations:	5
SOC&	101	Introduction to Sociology, or	
CMST&	210	Interpersonal Communications, or	
PSYC&	100	General Psychology	
		Communications	5
ENGL&	101	College Composition	
		Computations	10
MATH&	146	Introduction to Stats, and	
MATH&	141	Precalculus I	

REQUIRED COURSEWORK			
CS&	141	Computer Science I - JAVA	5
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL I	5
SOFT	101	Computer Concepts	5
SOFT	102	Programming Fundamentals	5
SOFT	103	Operating Systems	5
SOFT	121	C-Sharp I	5
SOFT	122	C-Sharp II	5
SOFT	132	C++	5
SOFT	142	Programming in JAVA II	5
SOFT	204	Open Source Programming	5
SOFT	207	Dynamic Web Pages	5
SOFT	208	Principles of Systems Analysis and Design	5
SOFT	209	Emerging Technologies	5
SOFT	210	Mobile Device Programming	5
WEB	101	Microsoft Office Applications	5
WEB	102	HTML, XHTML and CSS	5
SOFT	290	Capstone Project	5

Certificate of Competency: 60-65 Credits

BUSINESS APPLICATION DEVELOPMENTS

GENERAL EDUCATION REQUIREMENTS			CREDITS
90+	Level	Human Relations	5
90+	Level	Communications	5
90+	Level	Mathematics	5

REQUIRED COURSEWORK			
CS&	141	Computer Science I JAVA	5
DATA	101	Data Modeling\Relational Database Design	5
DATA	102	SQL I	5
DATA	105	Principles of System Analysis and Design	5
SOFT	101	Computer Concepts and Technologies	5
SOFT	102	Programming Fundamentals	5
WEB	101	Microsoft Office Applications	5
SOFT	290	Capstone Project	5

PROGRAMMING LANGUAGE

STUDENTS MUST CHOOSE ONE OF THE FOLLOWING OPTIONS:

OPTION A

SOFT	121	C-SHARP I	5
SOFT	122	C-SHARP II	5

OPTION B

SOFT	132	C++	5

OPTION C

SOFT	142	PROGRAMMING IN JAVA II	5

Web Design and Development

www.bates.ctc.edu/WebDeveloper

Instruction in this program combines a unique blend of design and development technologies using a hands-on approach. Students learn to use industry software and development tools to create, implement and maintain static and dynamic web sites. A web developer is responsible for the site design and functionality that make surfing the Internet fun and easy. Employment opportunities include positions as web designers, specialists, technicians, and developers.

FACULTY
Ingrid Smith

Associate in Applied Science-Transfer: 105 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
MATH&146	Introduction to Stats	5
MATH&141	Precalculus I	5
ENGL&101	College Composition	5
	Social Sciences/Communications Studies:	5
SOC& 101	Introduction to Sociology, or	
CMST& 210	Interpersonal Communications, or	
PSYC& 100	General Psychology	
	Humanities or Natural Science	5
ART& 100	Art Appreciation, or	
HIST 101	History of Science and Technology, or	
ASL& 101	American Sign Language I, or	
CHEM& 110	Chemical Concepts, or	
CHEM&121	Intro to Chemistry	

REQUIRED COURSEWORK		
WEB 102	Web Development I	5
WEB 201	Internet Technologies	5
WEB 202	Front-End Development Application	5
WEB 203	Web Graphics I	5
WEB 204	Web Motion Graphics	5
WEB 205	Introduction to Graphic Design	5
WEB 206	Web Development II	5
WEB 207	Web Interface Design	5
WEB 208	Web Graphics II	5
WEB 209	Content Management Systems I	5
WEB 210	Content Management Systems II	5
WEB 211	Introduction to Social Media and Analytics	5
WEB 212	Web Development III	5
WEB 213	Web Development IV	5
WEB 214	Professional Industry Practices	5
WEB 290	Capstone Project	5

Associate in Applied Science: 95 Credits

GENERAL EDUCATION REQUIREMENTS		CREDITS
100+ Level	Human Relations	5
100+ Level	Communications	5
100+ Level	Mathematics	5

REQUIRED COURSEWORK		CREDITS
WEB 102	Web Development I	5
WEB 201	Internet Technologies	5
WEB 202	Front-End Development Application	5
WEB 203	Web Graphics I	5
WEB 204	Web Motion Graphics	5
WEB 205	Introduction to Graphic Design	5
WEB 206	Web Development II	5
WEB 207	Web Interface Design	5
WEB 208	Web Graphics II	5
WEB 209	Content Management Systems I	5
WEB 210	Content Management Systems II	5
WEB 211	Introduction to Social Media and Analytics	5
WEB 212	Web Development III	5
WEB 213	Web Development IV	5
WEB 214	Professional Industry Practices	5
WEB 290	Capstone Project	5

Certificate of Competency: 75 Credits

FRONT-END WEB DESIGN

GENERAL EDUCATION REQUIREMENTS		CREDITS
90+ Level	Human Relations	5
90+ Level	Communications	5
90+ Level	Mathematics	5

REQUIRED COURSEWORK		
WEB 102	Web Development I	5
WEB 201	Internet Technologies	5
WEB 202	Front-End Development Application	5
WEB 203	Web Graphics I	5
WEB 205	Introduction to Graphic Design	5
WEB 206	Web Development II	5
WEB 207	Web Interface Design	5
WEB 208	Web Graphics II	5
WEB 209	Content Management Systems I	5
WEB 210	Content Management Systems II	5
WEB 211	Introduction to Social Media and Analytics	5
WEB 212	Web Development III	5

Welding

www.bates.ctc.edu/Welding

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.

FACULTY

Rick Huston, William Knox, Pat Normandeau, Tyler Renner

Associate in Applied Science: 120 Credits

GENERAL EDUCATION REQUIREMENTS	CREDITS
100+ Level Human Relations	5
100+ Level Communications	5
100+ Level Mathematics	5

REQUIRED COURSEWORK		CREDITS
WELD 101	Safety Principles	2
WELD 102	Fabrication Plans	4
WELD 103	Pre and Post-welding Activities	2
WELD 104	Oxyacetylene Cutting	3
WELD 105	Introduction to Shielded Metal Arc Welding	5
WELD 107	Brazing and Soldering	1
WELD 108	Full Penetration Welds – Flat/Horizontal	5
WELD 109	Full Penetration Welds – Vertical/Overhead	5
WELD 110	Full Penetration Welds – Open Root	5
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
WELD 114	Introduction to Flux Core Arc Welding	4
WELD 115	Flux Core Arc Welding – Full Penetration	5
WELD 116	Carbon Arc Cutting	5
WELD 117	Welding Symbols	5
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
WELD 204	Welding Certification Testing – SMAW	5
WELD 205	Advanced Welding Applications – Pipe/SMAW	5
WELD 206	Advanced Welding Applications – Pipe/GTAW	5
WELD 207	Welding Certification Testing – Flux Core	5
WELD 208	Non-Destructive Testing	1
WELD 209	Forklift Training	1
WELD 210	Advanced Welding Applications - Project	5

Certificate of Competency: 103 Credits

WELDER

GENERAL EDUCATION REQUIREMENTS	CREDITS
90+ Level Human Relations	5
90+ Level Communications	5
90+ Level Mathematics	5

REQUIRED COURSEWORK		CREDITS
WELD 101	Safety Principles	2
WELD 102	Fabrication Plans	4
WELD 103	Pre and Post-welding Activities	2
WELD 104	Oxyacetylene Cutting	3
WELD 105	Introduction to Shielded Metal Arc Welding	5
WELD 107	Brazing and Soldering	1
WELD 108	Full Penetration Welds – Flat/Horizontal	5
WELD 109	Full Penetration Welds – Vertical/Overhead	5
WELD 110	Full Penetration Welds – Open Root	5
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
WELD 114	Introduction to Flux Core Arc Welding	4
WELD 115	Flux Core Arc Welding – Full Penetration	5
WELD 116	Carbon Arc Cutting	5
WELD 117	Welding Symbols	5
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
WELD 204	Welding Certification Testing – SMAW	5
WELD 205	Advanced Welding Applications – Pipe/SMAW	5

Courses may be substituted with a work-based learning component with instructor approval.

Certificate of Training: 32 Credits

WELDER-LEVEL I

REQUIRED COURSEWORK		CREDITS
WELD 101	Safety Principles	2
WELD 102	Fabrication Plans	4
WELD 103	Pre and Post-welding Activities	2
WELD 104	Oxyacetylene Cutting	3
WELD 105	Introduction to Shielded Metal Arc Welding	5
WELD 107	Brazing and Soldering	1
WELD 108	Full Penetration Welds – Flat/Horizontal	5
WELD 109	Full Penetration Welds – Vertical/Overhead	5
WELD 117	Welding Symbols	5

Courses may be substituted with a work-based learning component with instructor approval.

Certificate of Training: 31 Credits

WELDER-LEVEL II

REQUIRED COURSEWORK		CREDITS
WELD 110	Full Penetration Welds – Open Root	5
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
WELD 114	Introduction to Flux Core Arc Welding	4
WELD 115	Flux Core Arc Welding – Full Penetration	5
WELD 116	Carbon Arc Cutting	5

Courses may be substituted with a work-based learning component with instructor approval.

This program is an I-BEST-supported program. Academic faculty embedded within the program provide additional support for students. Learn more on page 10.

Chapter Five • Course Descriptions

Degree & Certificate Course Descriptions

ACCOUNTING

ACCT& 201 Principles of Accounting I **5**
Prerequisite: MATH 092 Elementary Algebra or MATH 096 Business Math II
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.

ACCT& 202 Principles of Accounting II **5**
Prerequisite: ACCT& 201 Principles of Accounting I
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.

ACCT& 203 Principles of Accounting III **5**
Prerequisite: ACCT& 201 Principles of Accounting I and MATH 098 Intermediate Algebra or MATH 172 Applied Business Math
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.

ACCT 205 Excel for Accounting **5**
Prerequisite: ACCT& 201 Principles of Accounting I and INFO 101 Computer Application Essentials
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.

ACCT 207 QuickBooks **5**
Prerequisite: ACCT& 201 Principles of Accounting I
Learn 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.

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.

ACCT 225 Federal Income Tax **5**
Prerequisite: ACCT& 201 Principles of Accounting I
An introduction to federal income tax for individuals including current tax law, preparation of individual income tax form 1040 and related schedules.

ACCT 230 Governmental Accounting **5**
Prerequisite: ACCT& 201 Principles of Accounting I
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.

ACCT 235 Intermediate Accounting Topics **5**
Prerequisite: ACCT& 201 Principles of Accounting I
Provides an in-depth study of financial accounting theory and practice. Primary focus is on financial statement preparation for small to medium-sized domestic companies. Topics include revenue recognition and income determination, financial statement preparation and account reconciliation and analysis.

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.

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, columns and other formatting features. Graphics, WordArt, charts, text flow document templates Advanced features including mail merge, macros, document versioning and proofing tools.

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 and understanding of disease. Students learn basic prefixes, suffixes, combining forms, and medical abbreviations.

AMA 113 Business Communications **5**
This course will provide instruction in communication skills needed in the business/medical environment. Course content will include writing letters, memos, reports, resumes, and electronic messages. Emphasis will be placed on delivering oral presentations and developing interpersonal skills. Critical thinking and problem solving skills are emphasized. Development of these skills is integrated with the use of technology.

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.

AMA 115 Digital Medical Transcription **3**
Students are introduced to the processes used to transcribe a variety of medical correspondence and reportswith emphasis on the development of proofreading and editing skills. Digital media is introduced.

AMA 116 Medical Office Procedures **3**
Students complete practical applications related to a variety of administrative medical tasks to include appointment scheduling, internet research, referral process for treatment, and records management.

CREDITS

AMA 117 Beginning Medical Terminology 4
Students learn medical terminology with an emphasis on the integumentary, musculoskeletal, nervous, cardiovascular, and respiratory systems. Prerequisite required: ADMA 102

AMA 118 Administrative Medical Concepts 4
Students are provided an introduction to the general duties of the medical assistant in the health care setting: ethical and legal issues, telephone and electronic communication use, and computer use in the medical office. Prerequisite required: ADMA 101

AMA 119 Advanced Medical Office Procedures 3
Students complete practical applications related to a variety of administrative medical tasks to include: generation of reports, creating CMS-1500 forms for billing, editing drafts of documents, message taking, completing incident report, and preparing orders for supplies. Prerequisite required: ADMA 101 AND ADMA 104

AMA 120 Introduction to Spreadsheets 3
This course is an introduction to the basic concepts of MS Excel. Performing basic calculations using formulas, formatting and printing worksheets, create powerful charts and graphs.

AMA 121 Intermediate Medical Terminology 4
Students learn medical terminology with an emphasis on the digestive, urinary, female and male reproductive, and blood systems. Prerequisite required: ADMA 102

AMA 122 Intermediate Administrative Medical Concepts 4
Students are provided training in the areas of patient reception, appointment scheduling, written communication, mail processing, handling medical records, and filing (electronic). Prerequisite required: ADMA 101, ADMA 102, AND ADMA 105

AMA 123 Electronic Health Records 4
Students expand their medical transcription knowledge by getting exposure and hands-on experience with electronic documentation. Students will learn medical documentation guidelines in electronic format and how to manage and process medical data. HITECH and Meaningful Use standards will be featured. Prerequisite required: ADMA 102 AND ADMA 103

AMA 124 First Aid/CPR 1
Learn how to provide immediate care in cardiac, breathing and first aid emergencies until advanced medical personnel arrive. Students will receive FA/CPR/AED certification that meets OSHA standards.

CREDITS

AMA 125 Practice Management System Applications 2
Students learn to use a medical practice management data base and practice a variety of record maintenance functions common to a medical facility: scheduling, billing, account balancing, and financial report analysis. Students are a provided a hands-on approach utilizing practice management software. Prerequisite required: ADMA 101 AND ADMA 105

AMA 126 Advanced Administrative Medical Concepts 4
Students are introduced to administrative skills relating to: health information management, privacy issues (HIPAA), professional fees, banking procedures, and medical practice finances. Prerequisite required: ADMA 101, ADMA 105, AND ADMA 109

AMA 127 Medical Insurance 4
Students learn medical insurance terminology and processes for billing a variety of insurance types. They learn specifics of Medicaid, Medicare, Tricare, Workers Comp, and managed care.. Secondary insurance billing requirement, rebilling, and electronic billing are also included. Prerequisite required: ADMA 101 AND ADMA 105

AMA 128 Advanced Medical Terminology 4
Students learn medical terminology with an emphasis on the sense organs, endocrine, lymph and immune systems, and radiology, pharmacology, and mental health. Prerequisite required: ADMA 102

AMA 129 Medical Coding Applications 4
This course is an introduction to the 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: ADMA 102 AND either ADMA 106, ADMA 110, or ADMA 114

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.

AMA 131 Interview Techniques 3
Students will discuss different types of interview formats, brainstorm interview questions and answers, participate in mock interviews, learn how to handle unexpected interview situations. Resume development will be discussed.

CREDITS

AMA 132 Phlebotomy 3
Students learn to draw and process blood specimens for analysis.

AMA 133 HIV Prevention Education 1
This course meets Washington State Department of Health objectives for the four- and seven-hour HIV/Bloodborne Pathogens education requirement for credentialed healthcare providers and non-credentialed healthcare facility employees.

AMA 134 Healthcare Credentialing 2
This course is an introduction to the necessary components of healthcare credentialing. State, Federal, and administrative requirements are addressed. Guest speakers from local area healthcare facilities will provide additional training.

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. This project should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AMA 296 Work-based Learning Experience 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.

AMA 297 Work-based Learning Seminar 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.

AMA 298 Work-based Learning – No Seminar 1
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

ADMINISTRATIVE OFFICE ASSISTANT

AOA 101 Professional Communications 1
Students learn verbal and written communication skills that are required within the business and office environment.

AOA 102 Professional Office Procedures 5
This course is an introduction to duties and responsibilities found within the office administrative professions including the investigation of career paths, the development of career goals, and the exploration of customer service philosophies.

AOA 103 Telecommunications 1
Skills related to customer service, arrangement of business travel, operation of multi-line phone systems and facsimile equipment are introduced.

AOA 105 Keyboarding I 5
This course is an introduction to basic typewriting and computer keypad data entry skills.

AOA 106 MS Windows 1
This course is an introduction to MS Windows where students learn to Identify computer system components, use Windows software, and manage digital files.

AOA 107 MS Outlook 4
Students learn to manage calendars and utilize basic and advanced features of email systems.

AOA 108 Records Management 4
Students learn to perform records management activities at the level required within the administrative office assistant industry.

AOA 109 Business Ethics 2
Concept of ethics and its role in business are presented with emphasis on the examination of ethical situation and the creation of steps to solve the issue.

AOA 110 MS Word I 5
This course is an introduction to basic word processing skills using MS Word.

AOA 111 MS Outlook 2
Students learn to manage calendars and utilize basic and advanced features of email systems.

AOA 112 Business Grammar I 1
This course is an introduction to basic grammar including identifying parts of speech and writing grammatically correct sentences.

AOA 121 MS Word II 3
A continuation of the concepts introduced in AOA 110, students learn more advanced word processing skills.

AOA 123 Business Documentation 5
Written communication skills required within the business and office environment are developed.

CREDITS

AOA 124 Business Presentations 3
Business meeting structure, conduct, and protocols, including meeting facilitator's responsibilities are emphasized.

AOA 126 Business Grammar II 2
This course is an introduction to basic grammar including identifying parts of speech and writing grammatically correct sentences.

AOA 132 Business Grammar III 1
This course is an introduction to grammar including identifying parts of speech and writing grammatically correct sentences at the intermediate level.

AOA 202 Accounting Software 3
Students learn to use commercially available accounting software packages such as Quickbooks or timeslips to maintain books and business records.

AOA 203 MS Excel I 3
Students learn to create, edit, maintain, and print spreadsheets and data sheets and create and edit macros.

AOA 204 MS PowerPoint 3
This course is an introduction to presentation software that is used to create computer-based based slide shows.

AOA 205 MS Access I 3
This course is an introduction to Microsoft Access with emphasis on the acquisition of database maintenance skills.

AOA 206 Voice Recognition Software 2
This course is an introduction to voice recognition software with emphasis on the skills required to use this software for word processing purposes.

AOA 207 Business Grammar IV 1
This course is an introduction to grammar including identifying parts of speech and writing grammatically correct sentences at the intermediate level.

AOA 217 Business Grammar V 1
This course is an introduction to grammar including identifying parts of speech and writing grammatically correct sentences at the advanced level.

AOA 223 MS Excel II 3
Students learn advanced functions such as graphing, working with multiple spreadsheets, and formatting and printing spreadsheets and data sheets.

AOA 224 Desktop Publishing 3
Students are introduced to popular desktop publishing software such as MS Publisher and MS FrontPage and acquire desktop publishing skills.

AOA 225 MS Access II 3
Students learn to design and create databases to meet data collection and reporting requirements normally associated with business operations.

CREDITS

AOA 234 Employment Preparation1
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

AOA 240 Capstone Project 2
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.

AOA 291 Practical Applications 1-18
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.

AOA 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AOA 296 Work-Based Learning Experience 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.

AOA 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 meet with the students to provide support and assistance during the experience.

AOA 298 Work-Based Learning Experience – No Seminar 2
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

ARCHITECTURAL WOODWORKING/ CABINET 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.

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.

ARWC 103 Cabinetry Blueprints/Plans 4
An introduction to the fundamental skills of show drawings and detail plans, students learn to read and interpret plans including material and cabinet take-offs. Basic sketching is also introduced.

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.

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.

ARWC 106 Machine Tools II 4
A continuation of the concepts introduced in ARWC 105, students learn the proper use, maintenance, and 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 mortiser.

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.

CREDITS

ARWC 108 Portable Power Tools 3
This course is an introduction to the proper use, maintenance, and application of portable power tools. Common tool use and care of router and bits, the different types of routers and their application, biscuit cutter, pocket hole jigs, drills and drivers, and various joint- making tools and their set-up.

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.

ARWC 110 Basic Cabinet Joinery 4
Students learn 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 . Their application and suitability to different materials and production settings is also introduced.

ARWC 111 Tool Maintenance/Sharpening 3
This course is an introduction to the maintenance and sharpening of tools used in the shop including routine maintenance and minor tool repair/adjustments. 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 .

ARWC 112 Cabinetmaking/ Face I Frame Construction 4
Students learn to cut, assemble, and complete traditional face frame cabinets. Design, layout and proper material use will be covered. Design, layout, and proper material use is introduced as well as carcass assembly, face frames and door and drawer construction.

ARWC 113 Cabinetmaking/ Face II Frame Construction 4
A continuation of the concepts introduced in ARWC 112, students learn to cut, assemble, and complete traditional face frame cabinets. Design, layout, and proper material use is 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.

CREDITS

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.

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.

ARWC 116 Drawers and Doors 2
Students learn to assemble doors and drawers and design and manufacture different door/drawer styles to assigned/personal projects.

ARWC 117 Laminates / Countertops / Solid Surface 3
Students are introduce to the fabrication and assembly methods of various countertop materials including plastic laminates and solid surface materials.

ARWC 118 Occupational Math 3
This course is an introduction to mathematical computations as they relate to the architectural woodworking/cabinetry industry. Applied skills include material estimation and board, square, and linear footage calculations.

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, and proper tooling and ease of use. Work is on shop projects and simulated mockups.

ARWC 120 Cabinetmaking/ Commercial Construction 3
Students learn to assemble commercial casework including assembly methods, construction standards, and materials.

ARWC 121 Applied Communications 3
This course is an introduction to written communication skills and their application to professional-technical studies. Development of writing skills necessary to write technically formatted documents is emphasized.

ARWC 201 Wood Bending/ Lamination Techniques 3
Students learn wood bending/laminating techniques including vacuum bagging and lamination bending. Types of forms, construction of forms, adhesives, and best materials for bending are included.

CREDITS

ARWC 202 Architectural Millwork 3
Students learn architectural millwork fabrication and design methods using projects and mockups. Molding selection, machining, material selection, and cutting are also included.

ARWC 203 Beginning Furniture Projects 5
Furniture design, styles and assembly methods are taught.

ARWC 204 Cabinet Installation- Residential/Commercial 4
Students learn to install residential and commercial cabinets and fixtures. Layout, leveling, and fastening methods are also taught.

ARWC 205 Advanced Joinery 4
The selection and proper use of tools and materials in the creation of advanced joinery are emphasized.

ARWC 206 Cabinetmaking Computer Technology 4
This course is an introduction to the use of various industry software for design, layout, and manufacture of cabinets.

ARWC 207 Veneering Technology 2
Students learn to use a variety of methods of applying, fitting, and trimming veneers.

ARWC 208 Employment Preparation 3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

ARWC 209 Advanced Projects 1-18
With instructor approval, students select and complete an advanced project.

ARCH 213 Practical Applications 3
Students explore individual topics in depth relating to concepts introduced in previous coursework.

ARWC 291 Practical Applications 1-18
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.

ARWC 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

ARWC 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ARWC 295 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ARWC 296 Work-based Learning Experience 1-18
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.

ARWC 297 Work-based Learning Seminar 1-2
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.

ARWC 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

AUTO BODY REBUILDING & REFINISHING

AUTOB 101 Auto Body Math Applications — **3 CREDITS**
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.

AUTOB 102 Safety Principles — **3 CREDITS**
This course is an introduction to the safety practices and procedures common to the automotive refinishing industry.

AUTOB 103 Materials Identification — **3 CREDITS**
Students are introduced to the various types of automotive materials and 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.

AUTOB 104 Minor Body Repair Methods — **5 CREDITS**
Students learn about 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. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 105 Major Panel Replacement — **5 CREDITS**
Students learn 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. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 106 Alignment – Sheet Metal — **5 CREDITS**
This course includes practical applications in the adjustment/alignment of bolt-on sheet metal doors, hoods, fenders, and trunk lids. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 107 Alignment – Bumpers — **3 CREDITS**
Students learn to align a variety of bumpers including impact-absorbing, fixed mounted and metal reinforced. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 108 Alignment – Head Lamps — **1 CREDITS**
Students learn to align various types of headlamps in automobiles. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 109 Trim and Accessories — **3 CREDITS**
Students learn to replace trim molding, hardware, locks and latches and repair/replace window adjustment mechanisms and restraint devices. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 110 Window Mechanisms — **4 CREDITS**
Students learn to install mechanical and power window mechanisms. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 111 Introduction to Surface Preparation — **2 CREDITS**
Basic principles of interior and exterior surface preparation are introduced. Students learn to analyze the components of primers, undercoats, and topcoats. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 112 Surface Preparation Applications — **5 CREDITS**
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. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 113 Advanced Surface Preparations — **5 CREDITS**
A continuation of the concepts introduced in AUTOB 111 and 112, students continue to learned advanced surface preparation techniques to restore cars to factory standards after collision damage. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and AUTOB 112.

AUTOB 201 Topcoat Systems — **5 CREDITS**
Students are introduced to the basic principles of topcoat systems with emphasis on the types of automotive topcoat systems and their application procedures. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 202 Topcoat Systems Applications — **5 CREDITS**
A continuation of the concepts introduced in AUTOB 201, students learn to 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. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and AUTOB 201.

AUTOB 203 Shop Welding — **5 CREDITS**
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 learn to successfully join automotive sheet metal using the MIG process. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and WBAS 101.

AUTOB 204 Unibody Alignment — **5 CREDITS**
Students learn 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. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 205 Body Over Frame Alignment — **4 CREDITS**
Students learn to measure, align, and repair a unibody and body over frame vehicle. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 206 Glass Installation — **4 CREDITS**
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. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 207 Introduction to Plastic Repair — **2 CREDITS**
Students learn to identify the various types of plastics, their characteristics and locations, and which procedures to follow while repairing or refinishing the various types of plastics. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 208 Plastic Repair Methods — **5 CREDITS**
A continuation of the concepts introduced in AUTOB 207, students repair or refinish various plastic surfaces. Prerequisite: Successful completion of AUTOB 102, AUTOB 103 and AUTOB 207.

AUTOB 209 Shop Management — **3 CREDITS**
Students are introduced to the basic principles of body shop management with emphasis on management structure, customer relations, and sound business practices. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 210 Introduction to Estimating — **4 CREDITS**
Students learn to 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. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

AUTOB 211 Special Projects — **4 CREDITS**
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. Prerequisite: Successful completion of AUTOB 102 and AUTOB 103.

CREDITS

AUTOB 291 Practical Applications 1-18
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.

AUTOB 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOB 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOB 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOB 296 Work-based Learning Experience 1-18
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.

AUTOB 297 Work-based Learning Seminar 1-2
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.

AUTOB 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

AUTOMOTIVE TECHNOLOGY

AUTOM 101 Basic Engines 4
Students are introduced to internal combustion engine theory, configuration operation and diagnosis.

AUTOM 102 Engine Systems 4
Students are introduced to the operation and diagnosis of engine subassemblies such as valve trains, timing components and short blocks.

AUTOM 103 Basic Electrical Theory 4
Students are introduced to electrical theory including ohms law, series and parallel circuits, and measuring devices.

AUTOM 105 Engines/Electrical Applications 3
Students are introduced to automotive electrical applications such as charging systems and starting systems and problem diagnosis.

AUTOM 106 Shop Safety/ Meter Certification 1
Introduction to automotive shop safety and equipment use protocol. Students learn to operate a standard diagnostic meter.

AUTOM 121 Basic Engine Performance 5
Students are introduced to engine performance, diagnosis, and computer applications.

AUTOM 122 Basic Ignition Systems 5
Students are introduced to electronic and computer operated ignition systems including primary controls and secondary high voltage.

AUTOM 123 Introduction to Fuel Systems 4
Students are introduced to electrical and mechanical fuel delivery systems and test equipment.

AUTOM 124 Introduction to Emissions Systems 2
Students are introduced to EGR, evaporative and exhaust emission systems their requirements and operation.

AUTOM 125 Introduction to Fuel Injection 2
Students are introduced to electronic fuel injection, controls, and test equipment.

AUTOM 130 Introduction to Lighting and Instruments 4
Students are introduced to lighting types, switches and controls. Instrumentation theory and applications are examined.

AUTOM 131 Introduction to Clutches and Manual Transmissions 4
Students are introduced to gear trains and synchromesh transmission operation.

CREDITS

AUTOM 132 Automatic Transmissions/ Transaxles 4
Students are introduced to automatic transmission principles, hydraulics and planetary gear sets.

AUTOM 133 Four and All-wheel Drive 4
Students are introduced to four wheel drive, transfer cases and differentials.

AUTOM 140 Wheel Alignment and Steering Systems 4
Students are introduced to wheel alignment, rack and pinion steering, and suspension systems.

AUTOM 141 Brake Systems 4
Students are introduced to hydraulics, system splitting, and power brakes.

AUTOM 142 Disc and Drum Brakes 4
Students are introduced to brake types and applications including anti-loc.

AUTOM 143 Heating and Air Conditioning Systems 4
Students are introduced to automatic and manual mobile HVAC systems. Principles of heat transfer and refrigerant are examined.

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.

AUTOM 202 Engine Assembly 3
In this advanced course, engine subassemblies, cylinder heads, short blocks, and timing components are repaired to current standards.

AUTOM 203 Automotive Electrical Systems 4
In this advanced course, diagnostic testers and electrical troubleshooting are examined.

AUTOM 204 Battery, Starters, and Charging Systems 4
In this advanced course, battery, starting, and charging systems are diagnosed and repaired.

AUTOM 220 Ignition Systems Service 4
In this advanced course, computer and electronic ignition systems are diagnosed and repaired.

AUTOM 221 Fuel Systems Service 4
In this advanced course, pressurized fuel delivery systems are diagnosed and repaired.

AUTOM 222 Emissions Systems Service 3
In this advanced course, emissions are measured using modern test equipment and control systems adjusted and repaired.

CREDITS

AUTOM 223 Fuel Injection 3
In this advanced course, fuel injection is examined, adjusted and repaired using modern test equipment and diagnostic procedures.

AUTOM 230 Lighting and Instrument Service 3
In this advanced course, lights, wiring and instrument are examined, adjusted and repaired using modern test equipment and diagnostic procedures.

AUTOM 231 Clutches and Manual Transmission Service 5
In this advanced course, clutches and transmissions are examined and repaired using modern repair procedures.

AUTOM 232 Automatic Transmission and Transaxle Service 4
In this advanced course, automatic transmissions and transaxles are examined and repaired using modern repair procedures.

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.

AUTOM 240 Advanced Wheel Alignment and Steering Systems Service 4
In this advanced course, steering and suspension systems are serviced and aligned using modern alignment equipment.

AUTOM 241 Advanced Brake Service 4
In this advanced course, brake hydraulic systems are serviced using modern brake service equipment.

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.

AUTOM 243 Applied HVAC Service 3
In this advanced course, heating and air conditioning systems are serviced and repaired using modern AC service equipment.

AUTOM 250 Practical Applications 1-18
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.

CREDITS

AUTOM 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOM 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOM 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

AUTOM 296 Work-based Learning Experience 1-18
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.

AUTOM 297 Work-based Learning Seminar 1-2
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.

AUTOM 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

CREDITS

AUTOMOTIVE PARTS/INVENTORY/ WAREHOUSING

VPM 101 Applied Math 4
This course is an introduction to mathematical theory and its application to the vehicle parts marketing. Topics include an overview of general mathematical concepts and how they are successfully utilized in practical situations.

VPM 106 Material Movement 2
Students learn to move or transport material/stock and pallets using hand trucks and hand-powered hydraulic lifts.

VPM 107 Storage and Distribution 5
Students learn to locate, sort, place, and stack materials in a storage facility.

VPM 108 Shipping and Receiving 5
Warehousing documentation methods , including receiving documentation, overage, shortage, or damage are included.

VPM 109 Introduction to Vehicle Parts Merchandising 5
This course is an introduction to the warehouse/ distribution industry. Students learn the fundamentals of environmental protection guidelines within warehouse/distribution centers and how to operate forklifts in a safe and professional manner. Safety practices and procedures common to the industry are also presented.

VPM 110 Principles of Inventory Control 5
This course is an introduction to the principles of inventory control including fittings, valves, accessories, tubing and piping, sizing, and their application.

VPM 112 Stock/Product Order 4
Students learn to research product sources, analyze and select appropriate vendors, and order appropriate stock based on research.

VPM 115 Principles of Salesmanship 5
This course is an introduction to basic principles of salesmanship including the development of customer service skills, product knowledge, and related products for customer consideration.

VPM 116 Retail Point of Sale 3
Retail point of sale systems, how to complete sale transactions, and how to accept all types of monetary payment are emphasized.

VPM 119 Principles of Management 5
This course is an introduction to the principles of management with emphasis on the skills required of supervisory personnel within the vehicle parts sales environment.

CREDITS

VPM 120 Employment Preparation 3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

VPM 121 Retail Applications 3
Students apply skills learned during activities of a retail parts distribution facility when interfacing customers and vendors.

VPM 122 Warehouse Applications 3
Students apply skills learned during activities of a warehouse distribution facility where products are stored and distributed.

VPM 123 Stock Merchandising 3
Students learn how the storage facility supports the retail or wholesale environment. The completion of warehouse forms, pulling stock, and pricing and building displays is also included.

VPM 124 Automotive Parts Systems 4
This course presents the various inventory control systems that are commonly used in automotive parts departments and stores. Determining inventory levels is an integral part of this course.

VPM 125 Product Research Systems 4
Students learn to use a variety of automotive parts catalogs, pricing sheets, and parts systems research techniques.

VPM 126 Returns, Exchanges, and POs 2
Students learn to handle merchandise being returned for refund, "core" returns, warranty returns, and defective merchandise.

VPM 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

VPM 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

VPM 295 Work-based Learning Experience 5
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.

VPM 296 Work-based Learning Experience 2
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.

VPM 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 meet with the students to provide support and assistance during the experience.

VPM 298 Work-based Learning – No Seminar 3
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

VPM 299 Work-based Learning – No Seminar 6
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

BARBER

BARB 110 Barbering Theory 1
This course provides an orientation to the basic science of barber-styling. Concepts of personal and professional aesthetics and future roles within the aesthetics industry are also included.

BARB 111 Scalp and Hair Analysis 2
Students are introduced to the techniques used to analyze hair as to texture, density, and growth and their application to the barbering process.

BARB 112 Shampooing 3
This course is an introduction to the basic methods of shampooing, rinsing, and conditioning of the hair.

BARB 113 Decontamination and Infection Control 5
This course is an introduction to the proper sanitation procedures relating to tools and equipment, station, and the shop. Additionally, students are trained in safety procedures for barber shops including special emphasis on the materials, equipment, and procedures used for the protection of staff and customers from infectious disease organisms.

BARB 114 Introduction to Barbering 5
This course is an introduction to the fundamentals of barber-styling including the use and care of a variety of barbering implements.

BARB 115 Safety/First Aid 2
Students learn about proper safety measures concerning the use of electrical equipment, chemicals, and blood-related injuries. Students will also learn and demonstrate shop safety procedures. Students will earn a CPR-First Aid card as a part of this major duty area.

BARB 116 Basic Haircutting Techniques 4
This course provides theory and practical experience in basic shear and clipper haircutting.

BARB 117 Customer Service 4
Students learn how to identify customers' needs and solve problems. Special emphasis is given to the development of interpersonal communication skills and examining how employees' actions can directly impact customers' impressions.

BARB 118 Applied Communications 3
Students learn effective communication skills and apply them in a practical setting.

BARB 120 Math for Barbers 3
Instructional emphasis is on acquiring mathematical and problem-solving skills that apply to the barbering industry.

CREDITS

BARB 121 Facial Hair 5
This course is an introduction to the methods used to prepare a client for shaving, including proper razor handling and stroking. The fourteen facial areas are also included.

BARB 122 Barbering Applications 5
This course provides practical application of barber-styling fundamentals with emphasis on the care of implements, shampooing, and basic haircutting methods.

BARB 123 Intermediate Haircutting Techniques 3
Students learn various types of hair styles and procedures to perform them.

BARB 124 Haircutting Applications 5
Students apply the techniques previously learned in BARB 110,111,113.

BARB 125 Applied Human Relations 3
Students learn such human relations skills as interpersonal communications, conflict management on- the-job, and team-building skills.

BARB 131 Advanced Techniques 4
Students are introduced to razor cutting techniques.

BARB 132 Advanced Applications 5
This course provides advanced techniques in all phases of hair cutting to ready the student for employment. Students are prepared for State Board licensing examination on theory and practical procedures.

BARB 133 Cutting and Styling Methods 4
Practical applications of cutting and styling are emphasized.

BARB 134 Cutting and Styling Applications 5
This course provides advanced techniques in all phases of hair styling to prepare the student for employment. Students are prepared for the State Board licensing Examination relating to both hair cutting and hairstyling.

BARB 135 Hair Styling 2
This course introduces the student to the art of hair style and design with emphasis on the selection of styles to complement facial features.

BARB 136 Artificial Hair Services 2
Students learn about hair replacement techniques.

BARB 137 Practical Applications 2
Students learn how measure, fit, cut and style hairpieces.

CREDITS

BARB 291 Practical Applications 1-18
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.

BARB 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BARB 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BARB 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BARB 296 Work-based Learning Experience 1-13
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.

BIOMEDICAL EQUIPMENT TECHNICIAN: CLINICAL ENGINEERING

CREDITS

BMST 101 Safety Principles 4
Students are provided training in general safety and industrial hygiene. This includes accident prevention, safety laws, safe handling and storing of materials, using tools and equipment safely and protection devices and clothing.

BMST 102 Blood borne Pathogens 3
Students learn to apply various methods to prepare and ensure a scientifically clean and sterile environment within the laboratory setting. Additional topics include biohazard awareness.

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.

BMST 104 Applied Math 4
This course is an introduction to math concepts as they relate to electronic circuits.

BMST 105 Testing Equipment 5
Students learn to safely use and operate a variety of ancillary test equipment. Students receive lab training as well as hands on experience with actual equipment.

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.

BMST 107 Schematics 3
Students learn how to draw schematics/block diagrams, read and plan diagnostic procedures, and use a five-step troubleshooting/servicing format.

BMST 109 Applied Service I 3
This course prepares students to manage and repair shop projects. Projects may include preventive maintenance, installation, testing, calibration, and repair of various types of equipment.

BMST 110 Applied Service II 2
This course prepares students to manage and repair shop projects. Projects may include preventive maintenance, installation, testing, calibration, and repair of various types of equipment.

CREDITS

BMST 119 Medical Equipment Research I 1
This is an independent research project meant to build research and presentation skills. Students are required to produce six research projects to an audience. Projects subjects may vary from medical equipment, companies or professional associations, among others. Prior project approval from the instructor is required.

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.

BMST 204 Basic A&P for Biomedical Technology 4
The purpose of this course is to introduce students to the importance of the human body and its various organ systems. This course is designed for biomedical students and is a one quarter lecture course, The course will cover internal organ systems, such as cardiovascular, digestive, endocrine, lymphatic, respiratory, reproductive, and urinary. Students should come away with an understanding of the above systems, how they are anatomically structured, and how that structure aids in each system's functionality.

BMST 215 Introduction to Medical Terminology 3
This course covers some of the common terms, acronyms, roots and prefixes associated with the biomedical field. Instruction is delivered in three sections via the internet using Quia. Each section has multiple quizzes and is supplied with useful links for self study. Students complete each section pre final before moving to the next section. A final exam is given at the end of the course.

BMST 217 Biomedical Instrumentation 5
This course is an introduction to the more common medical test equipment used by practicing biomedical engineering technicians. Students learn the operating principle and use of this 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.

CREDITS

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. Projects subjects may vary from medical equipment, companies or professional associations, among others. Prior project approval from the instructor is required.

BMST 220 Biomedical Engineering Applications 5
During this course students are exposed to a lab setting meant to simulate an actual working environment. Student 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.

BMST 291 Practical Applications 1-18
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.

BMST 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BMST 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

BMST 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

BMST 296 Work-based Learning Experience **1-18**

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.

BMST 297 Work-based Learning Seminar **1-2**

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.

BMST 298 Work-based Learning – No Seminar **1-18**

This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

CREDITS

BROADCASTING/VIDEO PRODUCTION

BROAD 103 Safety and First Aid — 2 credits
This course is an introduction to the safety practices common to the broadcast and video production environment. Students will hold a CPR/First Aid Certification card after successful completion of the course.

BROAD 105 Broadcast Electronics Theory — 3 credits
Students are introduced to the principles and applications of resonant circuits, power supplies, oscillators, and AF and RF amplifiers. This unit is taught concurrently with BROAD 107 so that basic system understanding may be tied to basic electronic concepts.

BROAD 106 Applied Electronics — 3 credits
A continuation of the concepts introduced in BROAD 105, students learn how electronic theory is applied to broadcast circuits. This unit is taught concurrently with BROAD 108 so that basic system understanding may be tied to more advanced electronic principles.

BROAD 107 Electronic Concepts — 3 credits
Students are introduced to the study of modern electronics through a series of lectures and class discussions that are designed to be enjoyable, understandable, and practical. Topics covered range from beginning electro-static principles and Ohm's law to electromagnetic, inductive, and capacitive properties.

BROAD 108 Electronic Principles — 3 credits
Students apply their knowledge of electro-static principles, Ohm's law, and electromagnetic, inductive, and capacitive properties to broadcast equipment and systems.

BROAD 109 Characteristics of Sound — 3 credits
This course is an introduction to the physical nature of sound and how the ear translates it from a physical phenomenon to a sensory one. Topics include waveform characteristics, reflection, diffraction, frequency response, phase, loudness levels, sound-pressure levels, thresholds, and perceptions.

BROAD 112 Basic Audio Equipment — 3 credits
Basic audio tools including pickup, monitoring, distribution, routing, and manipulation devices are introduced and explored.

BROAD 113 Studio Acoustics — 3 credits
This course is an introduction to the design and construction of studios for a variety of applications including audio project, music, and audio-for-visual studios. Acoustics for control rooms is also examined.

BROAD 114 Introduction to Studio and Field Production — 3 credits
Basic equipment and skills used for video production in the studio and in the field are introduced and practiced. Students learn about cameras, lighting instruments, and audio equipment and the skills needed to complete production projects.

BROAD 116 Principles of Lighting — 3 credits
This course introduces students to lighting theory and techniques with emphasis on the most commonly used lighting instruments and accessories, light grids, dimmer boards, and control systems. Practical applications include lighting set up for productions.

BROAD 117 Program Editing I — 3 credits
Students are introduced to audio and video editing methods. Practical applications include correcting recorded flaws and timing errors while editing prerecorded material. Students perform to edit quality test standards.

BROAD 118 Control Room Equipment I — 3 credits
Students practice the operational skills necessary to set up, adjust, and operate various television control room hardware under broadcast operational conditions. Students learn how check program quality and make adjustments as needed.

BROAD 119 Basic Maintenance and Troubleshooting — 3 credits
Preventative maintenance methods and strategies are explored as students receive training in the use of electronic measuring devices, meters, and scopes. Soldering, splicing, and making cable connections are included in this unit.

BROAD 120 Introduction to Digital Recording — 5 credits
Students receive training in the operation of digital audio workstations.

BROAD 121 Production Process Theory — 3 credits
Students are introduced to the production process: theory, planning, and the application of sound project planning. Identification of the responsibilities of various jobs within the production unit is also included.

BROAD 123 Introduction to Broadcast Systems — 3 credits
Students are introduced to the fundamentals of the television signal, cable, microwave, satellite, and internet communication systems. The setup of basic video systems, along with audio and visual measuring equipment, is also covered.

BROAD 125 Record and Playback Devices — 3 credits
Students learn the basic theory and practice the operational skills necessary to adjust, set up and operate record and playback devices. The adjustment of system support equipment is also included.

BROAD 126 Elements of Audio I — 3 credits
Students learn patching and routing, and the distribution of television audio signals. Practical applications include the operation of audio record, playback, and pick up devices for productions and the set-up of control systems.

BROAD 127 Production Editing I — 3 credits
Students are introduced to both linear and non-linear systems. The proper planning, execution, and monitoring of audio and video continuity through the use of various hardware driven editing systems is also included. Students edit projects in order to create commercial and program material.

BROAD 129 Audio Techniques — 4 credits
While using audio record and playback equipment for productions, students develop audio editing, sweetening, and mixing technique. Advanced field audio techniques are also presented.

BROAD 201 Analog Systems I — 3 credits
Basic analog linear systems, aural and visual along with the color encoding process, are analyzed and discussed. Heterodyne and component analog systems are also covered. Students apply analog system principles to broadcast systems.

BROAD 202 Advanced Broadcast Formats — 3 credits
Students learn Advanced Television Systems Committee (ATSC) system requirements and standards. They also contrast and compare analog and digital broadcast technologies.

BROAD 203 Introduction to Digital Systems — 2 credits
Students are introduced to digital theory, concepts, and languages as well as sampling rates, quantum levels, and basic compression techniques. Analyzing system hardware and planning basic configurations is also included.

BROAD 204 Introduction to Operating Systems — 3 credits
Computer platforms and operating systems are analyzed and studied as students study various computer setup protocols and demonstrate basic system administration skills.

CREDITS

BROAD 205 Receivers/Transmitters 5
Students are introduced to the principles and applications of types of modulation, transmitters, receivers, power distribution systems, and grounding. BROAD 106 is a prerequisite for this unit which begins to prepare the student for the Society of Broadcast Engineers certification examination.

BROAD 206 Power and Communication Systems 3
A continuation of the concepts introduced in BROAD 205, students study the applications and principles of types of modulation, transmitters, receivers, power distribution systems, and grounding. The additional topics of cable, microwave, satellite, and fiber optic communication will also be covered. BROAD 205 is a prerequisite for this course.

BROAD 207 Advanced Editing Projects 5
Students conduct and complete an advanced digital editing project for a datacast application.

BROAD 209 AC/DC Circuits 5
Students study, analyze, and compare active devices in AC and DC circuits, solving circuit problems. Frequency, wavelength, and antenna systems are also studied.

BROAD 210 AC/DC Applications 4
Students apply knowledge of active devices in AC and DC circuits, solving complex circuit problems. The interaction of frequency, wavelength, and antenna systems is further analyzed.

BROAD 215 ATSC Formats and Transcoding 2
Topics for discussion and analysis include serial digital and component formats, transcoding, transport streams and data integration as well as possible artifact and "latency" anomalies.

BROAD 217 Audio Engineering 5
Students practice audio measurements and standards by testing audio equipment under broadcast conditions. Headroom and distortion parameters are discussed as well as designing, building, and installing audio impedance matching devices and 'pads'. Practical applications include an audio installation / set-up technician / sound engineer.

BROAD 219 Video Engineering 4
Students learn the limitations of human visual perception as it pertains to visual acuity. Practical applications include the analysis of video camera formats, light sources, and color temperatures. Using manuals and test equipment, students learn to set up and align test equipment, monitors and camera systems.

CREDITS

BROAD 221 Satellite Communications 2
Students learn the theory of operation of satellite up-link and down-link equipment. Using down-link equipment, students perform satellite acquisition applications.

BROAD 223 Systems Maintenance 5
Students practice a variety of skills: testing equipment, soldering, interpreting block and schematic diagrams, repairing electronic equipment, troubleshooting, and non-specific servicing.

BROAD 227 DTV Transmission Systems/8VSB 4
Students analyze and discuss fundamentals of DTV transmission systems including data randomizer, forward error correction, Reed Solomon encoder, data interleaver, trellis encoder and data multiplexer. Fundamentals of SSB, 8-VSB modulator, pilot insertion, VSB filter and modulator, RF up-converter, 8-VSB spectrum, 8-VSB transmission measurements, and adjacent channel considerations are also discussed.

BROAD 229 Compression: MPEG-II & AC-3 2
Students discuss and analyze 5.1/AC-3 video compression and image artifacts as well as digital transport system and 188 byte MPEG-II. Students compare contrast transport standards against transmission standards.

BROAD 231 Broadcast Station Operations 5
All aspects of operating a broadcast station are included: Federal Communications Commission rules and requirements, formats, programming and promotions, advertising, ratings and demographics, and traffic department and log-keeping.

BROAD 237 Control Room Equipment II 5
Students practice advanced control room operational skills as they learn the steps necessary to apply program material into computer-based server systems. This includes satellite, network, internet and other available program streams.

BROAD 239 Production Audio Preparation 5
Students learn to create scripts and work with project budgeting, prepare talent for production, practice voiceovers, and determine which sounds/music to use in productions.

BROAD 243 Master Control Operations II 5
Students operate all signal delivery system components used to feed audio and video signals to the program feed. They also monitor and meet all television signal standards and perform as the master control operator.

CREDITS

BROAD 247 Program Editing II 5
A continuation and expansion of Program Editing I, this covers the editing of program and promotional material to meet station scheduling requirements. Students also develop edit decision lists to perform critical program continuity edits. BROAD 117, Program Editing I, is a prerequisite for this course.

BROAD 248 Network Storage and Control 4
Students learn to operate various automation systems used in broadcasting including media preparation workstations and playout control systems. Media management concepts are also included.

BROAD 251 Introduction to the TV Process 3
This course is an introduction to idea formation and development, scripting, and the use of story boarding and shot lists in the planning and completion of productions.

BROAD 252 TV Production Applications 5
A continuation of the concepts introduced using production models such as effect-to-cause and process message, students apply production process methods in a broadcast production environment. Other elements presented include writing program proposals, preparing budgets, writing scripts, developing facilities requests, creating schedules, completing permits and clearances.

BROAD 255 Lighting Techniques 5
This course introduces students to the advanced functions of lighting theory and technique with emphasis on fixture repair, special effect lighting, and the use of color correction, diffusion, reflection, and deflection. Students also practice computing and splitting loads and creating lighting plans for field and studio productions.

BROAD 260 Studio Camera Equipment 3
This course is an introduction to studio camera equipment, accessories, and mounting equipment.

BROAD 261 Studio Camera Operations 5
In the second of two units on studio camera operation fundamentals, operate studio cameras and camera systems and teleprompting equipment.

BROAD 262 Set Design 3
This course introduces the student to set design techniques and methods, set properties, dressings, and various scene components. Practical applications including designing, drawing, building, and repairing scene components.

CREDITS

BROAD 265 Field Production 7
This course is designed to develop advanced field production skills necessary to complete remote projects. Included are site surveying, planning, set up, and lighting of different venues and completing projects using single or multiple cameras.

BROAD 267 Production Editing II 2
Students complete assigned projects using supplied elements. Evaluation will be based on meeting all applicable industry standards.

BROAD 273 Video Graphics Applications 5
This course is an introduction to advanced graphic scenarios, 3-D, and animation techniques with emphasis on methods used to import and export various graphic formats and the development and creation of graphic packages.

BROAD 276 Technical Directing 6
This course introduces students to the video switchers, video routing systems, video manipulation devices, system timing, and video patching systems commonly used in production. Other areas of emphasis include the technical director duties and responsibilities, the use of keys, chroma keys, and other special effects.

BROAD 283 Emerging Technologies 3
Advances in audio and visual imaging as well as emerging technologies including 'wavelet' and 'fractile' compression, broadcast media interactivity, and other sensory delivery systems are presented.

BROAD 285 Practicum I 5
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 286 Practicum II 5
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

CREDITS

BROAD 287 Practicum III 5
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 288 Practicum IV 1-5
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 289 Practicum V 1-5
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

BROAD 290 Practicum VI 1-5
Faculty assists students in selecting an approved industry practicum. Student responsibilities include the submission of a formal written report of no less than 500 words. With the instructor's prior approval, this report may be substituted with a formal class presentation of no less than 15 minutes.

CREDITS

CARPENTRY

CARPT 101 Carpentry Math — **CREDITS 3**
This course is an introduction to basic math concepts and their applications to the carpentry field. Linear, board, and square foot measurements and using formulas to calculate material requirement and costs is emphasized.

CARPT 102 Safety Principles — **CREDITS 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 safely use hand and power tools.

CARPT 103 Prints and Plans — **CREDITS 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.

CARPT 104 Construction Materials — **CREDITS 2**
The selection and installation of various types of construction materials is emphasized. Students learn about the types and sizes of lumber , the use of fasteners in carpentry, and the installation of hardware.

CARPT 105 Tools and Equipment — **CREDITS 4**
The proper use and care of measuring, layout, and hand tools is emphasized.

CARPT 106 Power Tools — **CREDITS 5**
This course is an introduction to the proper use and care of portable, stationary, electric, and pneumatic equipment.

CARPT 107 Optical Instruments — **CREDITS 3**
The use various transits and levels used in the construction industry is presented.

CARPT 108 Plot Plans and Building Layout — **CREDITS 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.

CARPT 109 Introduction to Framing — **CREDITS 4**
This course is an introduction to the procedures used to lay out and frame walls and ceilings including roughing-in door and window openings, constructing corners and partition Ts, bracing walls and ceilings, and applying sheathing.

CARPT 110 Foundation — **CREDITS 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.

CARPT 111 Foundation Footings — **CREDITS 3**
The correct and accurate placement of footings and piers are emphasized.

CARPT 112 Foundation Walls — **CREDITS 5**
This course is an introduction to the methods used to build, align, and establish concrete grades in forms. Materials calculation is also included.

CARPT 201 Floor Systems — **CREDITS 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.

CARPT 202 Wall and Ceiling Construction — **CREDITS 5**
Students learn to frame walls and ceilings according to federal, state, and local requirements.

CARPT 203 Stairs — **CREDITS 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.

CARPT 204 Introduction to Roofing — **CREDITS 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.

CARPT 205 Roof Construction — **CREDITS 5**
Practical applications using conventional methods of layout and sequence of assembly to erect a structure is emphasized.

CARPT 206 Introduction to Exterior Finish Methods — **CREDITS 4**
This course is an introduction to the materials and methods used for sheathing and exterior siding.

CARPT 207 Exterior Doors and Windows — **CREDITS 5**
This course is an introduction methods used to install a variety of windows, skylights, and exterior doors. The installation of weather-stripping and locks is also included.

CARPT 208 Siding — **CREDITS 5**
Types of exterior siding, surface covering systems, and the equipment used to apply them are emphasized.

CARPT 212 Moldings — **CREDITS 4**
The installation of a variety of trim pieces is emphasized.

CARPT 213 Employment Preparation — **CREDITS 2**
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

CARPT 215 Practical Applications — **CREDITS 2**
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.

CARPT 291 Practical Applications — **CREDITS 1-18**
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.

CARPT 292 Independent Projects — **CREDITS 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CARPT 293 Independent Projects — **CREDITS 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CARPT 294 Independent Projects — **CREDITS 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CARPT 296 Work-based Learning Experience — **CREDITS 1-18**
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.

CARPT 297 Work-based Learning Seminar — **CREDITS 1-2**
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.

CREDITS

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.

CARPT 210 Interior Floors, Walls, and Ceilings 4
Course emphasis is on surface preparation and applications methods that meet federal, state, and local requirements. Methods used to protect the interior of a structure against natural and man-made elements is also included.

CARPT 211 Interior Doors and Windows 5
The proper sequence used to set doors and install trim and hardware for both doors and windows is emphasized.

CARPT 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

CIVIL ENGINEERING TECHNOLOGY

CET 101 Introduction to Civil Engineering 3
This course is an introduction to the wide variety of projects tasked to civil engineers and how calculations are used. Typical calculations, fundamental dimensions, and units are introduced. The student learns the typical notations used and techniques to scale, format, and annotate calculation sheets.

CET 103 Statics 3
This course is an introduction to typical gravitational and lateral simple systems found in civil engineering. The concepts of reactions, Hooke's Law, elastic behavior of simple members under axial, bending, and torsion, forces are studied. The student learns about the coordinate systems required to properly model 3D vectors.

CET 105 Structural Analysis 3
This course is an introduction to the principles of the properties of typical structural section areas and volumes and covers basic structural types such as trusses, beams, columns, and footings. Basic material science and its structural properties are also covered.

CET 107 CAD – 2Dimension 3
This course is an introduction to AUTOCAD in two dimensions and covers drawing file types, templates, layers, and basic draw and modify commands. The student learns the Cartesian coordinate system and typical plate layout for a typical plan elevation and section drawing as well as annotation and plotting.

CET 109 Introduction to Surveying 3
This course is an introduction to surveying and how it relates to civil engineering with emphasis on the application of modern surveying equipment. The student learns the Public Land Survey System and horizontal and vertical datums. Spherical and Cartesian coordinate systems are also studied.

CET 111 Civil 3D Surfaces and Points 3
This is an introductory course on digital survey points and TIN surfaces in civil 3D. The student learns point file formats, data transfer, point styles, and labels. The creation and editing of surfaces are included along with manipulating styles and labels and includes the concepts of contours and surface profiles.

CET 113 Hydrology 3
This course is an introduction to hydrology and includes the study of regional rainfall events and how to calculate runoff from a project site. The student learns how to model a runoff basin, identify soil types and land, and to use different computer models common in the field.

CREDITS

CET 115 Agency Requisites 3
This course is an introduction to the different agencies and jurisdictions encountered when doing a typical civil engineering project. The student learns how to determine which agency, code, and design manual are applicable for a particular project.

CET 117 GIS Resources 3
This course is an introduction to the concepts and uses of the geographic information system (GIS) including include history of GIS; GIS data structures and sources of data; GIS tools, vendors, and software; applications; and resources. Practical applications include spatial data display and query, map generation, and simple spatial analysis using Autodesk Map.

CET 121 Coordinate Geometry 3
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 use trigonometry to solve right triangles. Horizontal and vertical curves are introduced.

CET 123 Alignments and Profiles 3
This course is an introduction to horizontal and vertical alignments. The student learns how design conditions affect the layout of works. Topics include how design speeds, sight distance, and maximum and minimum grades influence the design of roads. Also covered are how to model alignments and profiles in civil 3D.

CET 125 Basic Corridors in Civil 3D 3
This course is an introduction to typical cross sections used in civil engineering. The student learns how to create typical assemblies to model basic road corridors in civil 3D. The concepts of side slopes, daylights, and catch points are also covered.

CET 127 Surveying - Control 3
This course is an introduction to the concept of project control. Topics include site recon, control layout, datums and data collector set up. The student learns how to determine control point locations and set monuments and traverse in three dimensions to a required horizontal and vertical closure.

CET 131 Construction Materials 3
This course is an introduction to the typical materials used in a civil engineering project. The materials studied include concrete, asphalt, rock, PVC, steel, and soil. The student learns how to determine the required specifications, testing requirements, placement, measurement, and payment for a project.

CET 133 Civil 3D Grading 3
This course is an introduction to the concept of project control. Topics include site recon, control layout, datums and data collector set up. The student will learn how to determine control point locations, set monuments and traverse in three dimensions to a required horizontal and vertical closure.

CREDITS

CET 135 Utilities Design 3
This course is an introduction water, sanitary and storm sewer design. The student learns how to determine agency requirements, required details, calculations, size, and model in civil 3D pipe and structure networks. Topics also include pipe trenching, bedding, backfill, and layout for the various utilities.

CET 137 Topographic Surveying 3
This course is an introduction to design topographic surveys required for typical civil engineering projects. The student learns how to plan the control, datums, and limits of the survey. In addition, they set up job files and acquire the required data using robotic total station equipment.

CET 202 Finite Element Models 3
This course is an introduction to finite element computer modeling with emphasis on static models and how they are used to determine member stresses and deflections. The student learns how to create 2D and 3D models of beams, trusses, and frames using CadreLite.

CET 204 3D Structural Modeling 3
This course is an introduction to three dimensional modeling of structural elements in civil 3D. The student learns how to create and orient 3D elements such as cables, beams, and footings and how to connect various elements together.

CET 208 Civil 3D Structural Sections 3
This course is an introduction to drafting typical structural section details. The student learns how to plan the layout and scale to draft typical sections including retaining walls, beam/column connections, and footings.

CET 210 Contract Documents 3
This course is an introduction to contracts used in the civil engineering field with emphasis on the basic elements of a contract and the different types of documents that make up a project contract. The student learns how the plans and specifications are enforced in the construction process.

CET 212 Open Channel Flow 3
This course is an introduction to open channel flow. The student learns how calculated and computer model flow in various types of open channels use in civil engineering such as pipes, ditches, and trapezoidal channels.

CET 214 Drainage Reports 3
This course is an introduction to the preparation of typical drainage reports and analyses required for typical engineering projects. The student learns how to research agency requirements and design data and prepare the required elements to be included in the report.

CET 216 Civil 3D Storm Plans 3
This course is an introduction to the preparation of typical drainage plans used for construction. The student learns how to research agency requirements and incorporate them into a civil 3D model. The course focuses on the pipe network modeling and analysis functions in civil 3D.

CREDITS

CET 218 Erosion Control 3
This course is an introduction to the concepts of erosion control and the best management practices used to limit sediment runoff from construction sites. The student learns how to research agency requirements and prepare an erosion control plan and maintenance schedule.

CET 220 Road Design 3
This course is an introduction to road design in a specific jurisdiction and site with emphasis on the ability to determine the agency requirements and design data, procure required site topographic data, and prepare a proposed road design which will meet the jurisdiction's requirements.

CET 222 Construction Documents 3
This course is an introduction to the preparation of construction plans required for typical engineering projects. The student learns how to research agency requirements, prepare cover and detail sheets, format plan and profile sheets, and lay out required cross sections. Civil 3D's sheet set function is introduced.

CET 224 Advanced Corridors in Civil3D 3
This course covers advanced corridor design techniques in civil3D. The student learns how to model roundabouts, intersections, and cul-de-sacs. Additional topics include adding trenches, retaining walls and guard rails to basic corridors.

CET 226 Construction Staking 3
This course is an introduction to construction staking of typical engineering projects. The student learns how to create survey data for the different elements, export alignments, and profiles and design surfaces to the data collector. The student also learns the stakeout function in the field and how to write up guard stakes.

CET 231 Projects I and Special Topics I 3-5
This course is a culmination of the program of study for the CET degree. Students will complete a combination of a project and one or more special topics. The student will work in a team or individually, and the decision of the project and team members will be a joint decision between the instructor and the student and/or students. This class could be taken consecutively with CET 232 by special arrangement with the instructor and registrar; or it can be taken individually. The number of credits will be determined based on the need for requirements of graduation.

CET 232 Projects II and Special Topics 3-5
This course is a culmination of the program of study for the CET degree. Students will complete a combination of a project and one or more special topics. The student will work in a team or individually, and the decision of the project and team members will be a joint decision between the instructor and the student and/or students. This class could be taken consecutively with CET 231 by special arrangement with the instructor and registrar; or it can be taken individually. The number of credits will be determined based on the need for requirements of graduation.

CREDITS

CET 291 Practical Applications 1-18
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.

CET 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CET 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CET 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CET 296 Work-based Learning Experience 1-18
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.

CET 297 Work-based Learning Seminar 1-2
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.

CET 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CNC MACHINIST

CREDITS

CNCM 102 Machining Fundamentals 3
This course is an introduction to the machines and techniques used in the machine shop industry. The history of machine tools and their development into the machines of today are included in this evaluation of current best practices including speed and feed calculations.

CNCM 110 Mill I 2
This course introduces the student to the conventional milling machine. The student makes a simple milled project.

CNCM 111 Introduction to CNC Technology 2
This course introduces the student to the many ways CNC technology is used today. Machining, science, the food industry and many other applications of CNC are examined.

CNCM 112 CNC Controls 3
This course introduces the student to the main differences between the most commonly available CNC controls in use by industry today.

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).

CNCM 114 CNC Troubleshooting 3
This course presents program and hardware problems to the student. Included are ATC arm failures, program errors, coordinate system setting errors, tool setting errors and power system failures, and how to recover from them.

CNCM 119 CNC Lathe I 3
This course is an introduction to the lathe. There are one conventional and two CNC lathe projects. The controls and set up procedures for the CNC lathe are the focus of this class. The foundation of simple manual programming is also considered.

CNCM 203 CNC Milling I 5
This course has the student set up and run the CNC machining center from power on to shut down using existing programs. The student will use tools from a common cutter package.

CNCM 204 CNC Milling II 5
This course has the student set up and run the CNC machining center from power on to shut down using student created programs. The student will program and run a part from a blueprint using existing work holding devices.

CREDITS

CNCM 207 Advanced Projects I 5
During this course the student will do a complete set up of the CNC Lathe and the CNC Mill. The student will choose and load tools, measure and enter tool offsets, load and dial in fixtures, set work coordinate systems, choose and download programs, run a fail-safe routine and use advanced techniques for first part runs.

MFCNCM208 Advanced Projects II 5
This course is a continuation of Advanced Projects 1 (CNCM 207)where the student is given more complicated parts to make, and will write their own programs.

CNCM 209 Advanced Manufacturing Processes 3
This course focuses on High Speed Machining, Flexible Manufacturing Systems (FMS), cell and pull systems.

CNCM 211 CNC Lathe II 5
Students learn to run the CNC lathe from power on to shut down using existing programs and tooling.

CNCM 212 CNC Lathe III 5
Students learn to run the CNC lathe from power on to shut down using student-prepared programs.

CNCM 213 Aerospace Blueprint Reading 3
This course is an introduction to the basic principles of aerospace blueprint reading as it relates to machine shop-CNC operations. The interpretation of information located on engineering drawings and parts list navigation is emphasized.

CNCM 215 Computer-Aided Manufacturing 5
Students explore Computer Aided Manufacturing (CAM) as it relates to the CNC Machinist industry. This course covers multi-axis mill and 2-axis lathe programming, including high speed milling processes and advanced machining fixtures.

CNCM 216 Introduction to Computer-Aided Drafting (CAD) 5
This course introduces computer-aided drafting (CAD) including 3D solid modeling, engineering drawings and component assemblies.

CNCM 217 Emerging Technologies 3
This course examines technologies expected to continue to be dominant or to become dominant manufacturing methods within the next 25 years. Water jet, stereo lithography, nanotechnology, ultrasonic machining and liquid metal will be featured.

CNCM 291 Practical Applications 1-18
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.

CREDITS

CNCM 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNCM 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNCM 296 Work-based Learning Experience 1-13
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.

CREDITS

COMMERCIAL TRUCK DRIVING-ENTRY LEVEL

TRUCK 101 Safety/First Aid **3**
Students learn basic principles of safe driving principles and local and state driving laws with emphasis on the requirements of the Department of Transportation. CPR/first aid training is given.

TRUCK 102 Introduction to the Trucking Industry **4**
This course is an introduction to the trucking industry including occupation terminology and signage; trucking company structure and its operation; and driver responsibilities on the road and at pickup/delivery points. The completion of inspection reports, daily/monthly logs, freight bills, waybills, manifests, trip planning, and state accident reports is also included.

TRUCK 103 Commercial Driver's License (CDL) **4**
Students are prepared to take the CDL tests and endorsements.

TRUCK 104 Pre-Trip Requirements **3**
This course is an introduction to pre-trip inspection procedures used in the commercial truck driving industry. Students learn to read maps, plan destination and return trip s, acquaint themselves with emergency equipment.

TRUCK 105 Close Quarters Operation **5**
Students learn to drive in a close quarter warehouse type facility: hooking, unhooking of trailers, backing up to docks, and maneuvering in close quarters.

TRUCK 106 Materials/Cargo I **3**
Students learn preventive maintenance techniques , fork lift operation methods, loading and unloading of cargo, and selecting appropriate hazardous cargo placards.

TRUCK 107 City/Town Driving **5**
Students learn to operate trucks in city situations: turns, lane changes, clutching and shifting, weather conditions, and parking.

TRUCK 108 Freeway/Open Road I **5**
Students learn to operate trucks in open road situations: freeway driving entrance and exiting, passing vehicles safely, and open road parking techniques.

TRUCK 110 City/Town Driving **4**
Students receive additional training and gain experience in short-haul operations: in-town driving techniques, environmental factors, and parking techniques.

CREDITS

TRUCK 111 Materials/Cargo II **4**
Students learn preventive maintenance techniques, fork lift operation methods, loading and unloading of cargo, and USDOT Hazardous Materials Regulations.

TRUCK 112 Freeway/Open Road II **4**
Students receive additional training and gain experience in long-haul operations.

TRUCK 113 Advanced Commercial Driving **4**
Students complete commercial administrative documentation, perform pre-trip and post-trip duties, meet dispatch system requirements, and perform fleet operations area activities.

CREDITS

COMPUTER NETWORKING SYSTEMS TECHNICIAN

CREDITS

CNST 110 MS Client Operating Systems 5
This course introduces the student to implementation, administration, and troubleshooting Windows® client operating systems on a networked desktop or mobile platform. This course prepares students for the Microsoft 70-270 Windows XP exam, or the Microsoft 70-680 Windows 7 exam.

CNST 201 Cisco Network Fundamentals 5
The Cisco Networking Academy consists of four blocks. 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 the basic internetworking fundamentals.

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.

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. This includes learning how to interface a Linux operating system to interact in a Microsoft Windows network.

CNST 207 Network Infrastructure 5
This course introduces the student to installation, managing, monitoring, configuring and troubleshooting DNS, DHCP, remote access, network protocols, IP routing, and WINS in a Windows® Network Infrastructure. This course prepares students for the Microsoft Windows Server 70-291 certification exam.

CNST 209 Directory Services 5
This course introduces the student to installation, configuring, and troubleshooting the Windows® Active Directory and components such as DNS, Active Directory Sites and Services as well as Active Directory replication and security principles. This course prepares students for the Microsoft Windows 70-294 certification exam.

CNST 210 Network Security 5
This course introduces the student to implementing and administering security in a Microsoft Windows network. The student learns about security concepts such as encryption and authentication so that sensitive data may be safely sent across a wide or local area network. This course prepares a student for the Microsoft Windows 70-299 certification exam.

CREDITS

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.

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.

CNST 291 Practical Applications 1-18
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.

CNST 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNST 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CNST 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

CNST 296 Work-based Learning Experience 1-18
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.

CNST 297 Work-based Learning Seminar 1-2
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.

CNST 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

COMPUTER REPAIR & NETWORK SUPPORT

CRNS 103 A+ Essentials 4
This course prepares students for CompTIA A+ certification. This is an introduction to computer components, operating system software, computer hardware, wireless connectivity, security, safety, environmental concerns, diagnostic tools and communication skills. Virtual learning tools are integrated into the course and provide students with interactive learning experiences. This is a web enhanced course.

CRNS 104 A+ Practical 4
This course builds on the skills learned in the A+ Essentials course. Students learn using actual scenarios how to support PC hardware in a business setting, including installation, troubleshooting, component replacement, networking, and security. Students also learn to manage the Windows operating system.

CRNS 106 Cisco Networking Fundamentals 5
Students develop an understanding needed to maintain small to medium- sized computer Networks, IP addressing, Ethernet, network cabling, and routed protocols. This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. It uses the OSI layered model to examine the nature and roles of protocols. At the end of the course, students understand basic functions of network devices such as routers and switches, and should be able to implement IP addressing. This is a web enhanced course.

CRNS 107 Cisco Routing Protocols and Concepts 5
This course describes the architecture, components, and operation of routers, and explains the principles of routing and routing protocols. Students learn routing principles, simple LAN topologies, basic principles of cabling and IP addressing, and configuration of basic network devices such as routers and switches. Students analyze, configure, verify, and troubleshoot the primary routing protocols RIPv1, RIPv2, EIGRP, and OSPF. This is a web enhanced course.

CRNS 109 MS Client Operating System 5
This course introduces the student to implementation, administration, and troubleshooting Windows® client operating system as a desktop operating system in a networking environment.

CRNS 110 MS Client Operating System Lab 4
In this course students apply the principles of implementation, administration, and troubleshooting with the Windows® client operating system as a desktop operating system in a networking environment.

CREDITS

CRNS 111 Advanced Projects 1-7
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.

CRNS 112 Security Plus 5
In this course, students learn strategies and techniques for protecting the integrity of computer networks using cryptography, access control, authentication, security baselines, system updates, intrusion detection and other techniques for limiting security risks. This course helps prepare students for CompTIA's "Security+" certification.

CRNS 120 Employment Preparation 5
Students learn job search techniques, resume writing, and receive assistance in developing career goals, educational plans and participate in classroom discussions and multi-media presentations.

CRNS 212 LAN Switching and Wireless 5
Students learn how to select devices for an efficient network, configure a switch for basic functionality and how to implement Virtual LANs, VTP, and Inter-VLAN routing in a converged network. Students develop the knowledge and skills necessary to implement a Wireless LAN in a small-to-medium network. This is a web enhanced course.

CRNS 213 Accessing the WAN 5
This course discusses WAN technologies required by large, enterprise networks. Students employ Cisco Network Architecture to implement and configure common protocols and to apply WAN security concepts, principles of traffic, access control, and addressing services. Finally, students learn how to detect, troubleshoot, and correct common enterprise issues. This course prepares students for the CCENT/CCNA Cisco certification. This is a web enhanced course.

CRNS 291 Practical Applications 1-18
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.

CREDITS

CRNS 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CRNS 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CRNS 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CRNS 296 Work-based Learning Experience 1-18
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.

CRNS 297 Work-based Learning Seminar 1-2
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.

CRNS 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

CULINARY ARTS

CARTS 101 Introduction 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.

CARTS 102 Sanitation and Food Safety 2
Students learn food production practices that are governed by changing federal and state regulations. Content includes the prevention of food-borne illness, HACCP procedures, legal guidelines, kitchen safety, facility sanitation, and guidelines for safe food preparation, storage, and reheating. Students take the National Restaurant Association ServSafe examination in this course.

CARTS 103 Product Identification 2
The identification and use of a variety of products includes vegetables, fruits, herbs, nuts, grains, dry goods, prepared goods, dairy products, and spices. Students also learn to identify, receive, store, and hold products.

CARTS 104 Fundamentals of Table Service 3
This course is an introduction to table service principles with 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.

CARTS 105 Garde Manger 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.

CARTS 106 Breakfast Service 2
This course includes both theory and lab applications in breakfast preparation with emphasize 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.

CARTS 107 Food Service Math and Cost Control 4
The course is an introduction to the principles and practices used to determine costs in a restaurant or food service organization. Topics presented include menu analysis and determining the cost of food, equipment, and supplies.

CARTS 108 Fundamentals of cooking II 4
A continuation of the concepts introduced in Fundamentals of Cooking I, this course includes both theory and cooking techniques in product tasting; stock production; stews, broths, and advanced soups; and starches such as potatoes, grains, rice, and pasta. Timing, station organization, and culinary French terminology are also presented.

CREDITS

CARTS 109 Cooking Applications 9
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.

CARTS 110 Food and Beverage Service 6
This course is an introduction to table service principles with 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.

CARTS 111 Introduction to Baking 5
This course is an introduction to quick dough's, yeast products, and the basic preparation methods used with pies, breads, and cookies.

CARTS 112 Advanced Cooking Techniques 5
Students demonstrate how to interact professionally with customers and co-workers in order to provide quality service in a variety of situations. Emphasis is on the meaning of service, the identification of customers' needs, and the development of strategies to solve customer problems.

CARTS 118 Introduction to Catering and Banquets 4
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 organization and the equipment and responsibilities of the "cold kitchen."

CARTS 120 Food Truck Fundamentals 3
This class will concentrate on understanding licensing requirements and preparing for and operating the food truck.

CARTS 121 Business Plans for Mobile Food Service 3
This course is an introduction to the marketing strategies used to compete effectively in the mobile food service industry. Emphasis is on the development of a comprehensive business plan.

CARTS 122 Food Truck Operation 3
This class concentrates on the safe and sanitary operation of a mobile food truck, including operating a commissary kitchen, equipment and small wares on a food truck.

CREDITS

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.

CARTS 202 Meats and Seafood 3
This course 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.

CARTS 203 Nutrition 2
This course gives students a global perspective of food and nutrition issues that impact our world. Contemporary topics include food production, world-wide food supply and demand, land and water availability for crops and livestock, genetically modified food, food radiation, and technological changes in agriculture.

CARTS 204 Restaurant Desserts 5
The preparation and service of a variety of hot and cold desserts is emphasized in this course. Students prepare frozen and individually plated deserts as well as desserts for functions and banquets. The development of a dessert menu emphasizing variety, cost, practicality, and compatibility with other menu items is also included.

CARTS 205 Regional and International Cuisine 6
Regional cuisine explores the use of indigenous ingredients in the preparation of traditional and contemporary American specialties. Students prepare, taste, serve, and evaluate traditional regional dishes.

CARTS 206 Garde Manger II 2
This course is a continuation of the concepts introduced in CARTS 108; students prepare cold foods including salads, salad dressings, cold appetizers, and buffet items, as well as vegetable and fruit decorations.

CARTS 207 Catering and Banquets 8
In a kitchen/banquet environment, emphasis is on volume food production including preparation, timing, and garnishing of food for banquets. Reception food, buffet arrangements, and plate arrangements are also included.

CARTS 208 Classical Cooking Applications 9
The application of advanced cooking skills includes vegetable cookery by color and family, the production of stews from vegetables and grains, and advanced soup cookery using broth and bouillon. Also included are practical applications used with starches and grains: potatoes, rice, fresh pasta, and dry legumes.

CREDITS

CARTS 209 Ice Carving 1
In this course, students carve ice sculptures using a variety of stencils, templates, and molds.

CARTS 210 Introduction to Management 5
This course is an introduction to the various management topics as they relate to a food service establishment: leadership, training, motivation, delegation, problem-solving, decision-making, and conflict resolution.

CARTS 211 Chef's Table Service 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.

CARTS 212 Techniques of Restaurant Cooking 4
A basic cooking principle of quantity food preparation is the focus of this course. Skills of efficiency, organization, speed, timing, and quality volume production are also stressed.

CARTS 213 Wine/Spirits 4
This course is an introduction 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.

CARTS 214 Employment Preparation 2
Students develop techniques and strategies for marketing themselves in their chosen fields. Emphasis is on finding a job and then getting and keeping that job.

CARTS 291 Practical Applications 1-18
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.

CARTS 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CARTS 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

CARTS 296 Work-based Learning Experience 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.

CREDITS

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DATABASE TECHNOLOGY

DATA 101 Data Modeling\ Relational Database Design 5
Using Access, Visio, and other data modeling tools, students learn 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. Prerequisite: DATA 102

DATA 102 SQL 5
Students are introduced to Structured Query Language (SQL), the industry-standard language for storing, retrieving, displaying, and updating data in a relational database. They learn to create, update, and delete computer databases. Prerequisite: Program Logic

DATA 103 Operating Systems 5
Students are introduced to a variety of operating systems with major emphasis on LINUX in an Oracle database environment. Students learn to install and maintain the operating system.

DATA 201 PL/SQL 5
This is an advanced course in Structured Query Language (SQL) used to develop script files, stored procedures, and PL/SQL units in the Oracle DBMS (Database Management System). Skills the student obtain include designing PI/SQL packages and program units and creating, executing, and maintaining procedures, packages, and database triggers. Prerequisite: DATA 102

DATA 202 Database Fundamentals I 5
Students learn the key tasks and functions required of a database administrator in a production environment. They learn to create implement a database, manage data, expand the size of the database, implement basic security and data integrity measures, and grant data access privileges. Prerequisite: All 100-level DATA courses or instructor permission

DATA 203 Database Fundamentals II 5
This is a project-oriented class with emphasis on system support, tuning, problem diagnosis, and problem resolution. Students learn to anticipate, diagnose, and resolve a variety of performance problems using real-world scenarios. Prerequisite: DATA 202

DATA 204 Database Fundamentals III 5
This is a project-oriented class with emphasis on integrating all of the database administration skills learned in the previous database courses. Database certification exams are emphasized during this course. Prerequisite: DATA 203

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SOFT 204 Open Source Programming 5
This course leverages the knowledge gained in previous courses in do development in an open source environment. Students will work in a Linux environment and utilize an open source programming language and open source database software. Prerequisites SQL, Operating System and JAVA II.

DATA 290 Capstone Project 5
This course offers students an opportunity to work independently on a culminating 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.

DATA 291 Practical Applications 1-18
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.

DATA 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DATA 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DATA 294 Independent Projects 20-100 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DATA 296 Work-based Learning Experience 1-18
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.

CREDITS

DATA 297 Work-based Learning Seminar 1-2
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.

DATA 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

DENTAL ASSISTING

DNTA 110 Introduction to Dental Assisting 2
This course is an introduction to the dental assisting profession including the role of the dental assistant in the dental office, legal and ethical considerations, HIPPA regulations, and dental equipment and terminology. Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 111 Infection Control 5
This course is an introduction to microbiology, and the application of standard infection control practices including aseptic techniques in the dental office. Infection control, hazardous waste management and safety standards are emphasized. Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 112 Biomedical Sciences 5
This course is an introduction to the biomedical sciences and their application to the dental assisting industry: anatomy and physiology, embryology, histology, and morphology. Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 114 Dental Sciences I 4
Students are introduced to the fundamentals of oral health and preventative techniques, oral pathology, pediatric dentistry, nutrition, and pharmacology . Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 120 Introduction to Chairside Assisting 4
Students are introduced to the fundamentals of chairside assisting including patient management, assessment of the patient's medical health history, medical emergencies, and the student's role in patient care. Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 121 Chairside Assisting I 4
Students are introduced to the fundamentals of chairside assisting including recording dental chart information, instrument transfer, maintaining the operating fields, coronal polish, apply dental sealants, and the skills necessary to assist in the delivery of dental services to patients in a pre-clinical environment. Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 122 Dental Materials I 3
This course is an introduction to fixed and removable prosthodontics with instruction in the physical properties and manipulation of dental materials used in diagnostic and prosthetic procedures. Fabrication of study models and the manipulation of qypsum products are emphasized. Prerequisite: Must be admitted into the Dental Assisting program.

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DNTA 124 HIV/AIDS Training 1
Approved Washington State Department of Health mandated HIV/AIDS training course. Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 127 Office Administration 3
Students learn the basic business administration skills necessary to manage a dental office. Customer service, appointment scheduling, patient files, record management, maintaining and inventory system, and familiarization with dental software programs are included. The use of mathematics to maintain records and accounts is emphasized.
Prerequisite: Must be admitted into the Dental Assisting program.

DNTA 128 Dental Sciences II 3
An introduction to various dental sciences to include; dental radiography, selected specialty procedures, dental dam, and restorative procedures. Prerequisite: Successful completion of the first trimester.

DNTA 130 Dental Sciences III 3
This course is continuation of the various dental sciences to include; dental anesthesia, cavity classification and rotary instruments. Prerequisite: Successful completion of the first trimester.

DNTA 131 Chairside Assisting II 3
A continuation of the concepts introduced in DNTA 121, students learn to process new patients, chart information, and prepare rotary instruments. Students learn more advanced chairside skills including identification of hand instruments and tray set-ups. Prerequisite: Successful completion of the first trimester.

DNTA 134 Chairside Assisting III 3
Students learn to apply dental dams and prepare anesthetics. Prerequisite: Successful completion of the first trimester.

DNTA 139 Restorative Services I 5
This course is an introduction to the materials and techniques used in the preparation and use of common restorative materials. Students learn to place and remove matrix and wedges. This course is an introduction to materials and techniques used to place temporary restorations. Prerequisite: Successful completion of the first trimester.

DNTA 144 Dental Radiology 5
An advanced course in dental radiography. Students learn both theory and practical applications in the area of production radiation including the taking and processing of dental x-rays. Content also covers digital radiography, quality assessment, and technique errors. Students will mount and evaluate full mouth series of radiographs using the paralleling and bisecting techniques. Radiographs are exposed on manikins and lab patients. Prerequisite: Successful completion of the first trimester.

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DNTA 146 Chairside Assisting IV 5
An advanced chairside assisting course related to restorative procedures and selected specialty procedures. Prerequisite: Successful completion of the first trimester.

DNTA 147 Dental Materials II 3
Students learn advanced techniques in fixed and removable prosthodontics, including the manipulation of final impression materials, fabrication of a variety of provisional crowns, and the cementation of fixed appliances. Prerequisite: Successful completion of the first trimester.

DNTA 150 Dental Sciences IV 3
An introduction to the specialties of oral surgery and orthodontics. This course will include background, procedures and instrumentation. Prerequisite: Successful completion of the second trimester.

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 journals are required and seminars are held to evaluate and review clinical application. Prerequisite: Successful completion of the second trimester.

DNTA 152 Dental Materials III 4
This course has emphasis on the fabrication of a variety of provisional crowns as well as defining and describing aspects of cosmetic dentistry. Prerequisite: Successful completion of the second trimester.

DNTA 153 Office Administration Applications 2
Students learn the basic business administration skills necessary to manage a dental office. Financial systems to include employee records management will be introduced. The use of mathematics to maintain records and accounts is emphasized. Interview techniques will be reviewed and resumes will be prepared. Prerequisite: Successful completion of the second trimester.

DNTA 162 Clinical Experience II 3
A continuation of the student's clinical experience. Students acquire clinical practice to perfect their skills in performing dental assisting functions including expanded functions. General Dentistry is emphasized. Weekly journals are completed and seminars are held to evaluate and review clinical applications.
Prerequisite: Successful completion of DNTA 151.

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DNTA 165 Clinical Experience III 2
A continuation of the student's clinical experience, students continue their clinical practice to perfect their skills in performing dental assisting functions including expanded functions. General Dentistry or Specialty Dentistry is emphasized. Weekly journals are completed and seminars are held to evaluate and review clinical applications. Prerequisite: Successful completion of DNTA 151 and DNTA 162.

DNTA 291 Practical Applications 1-18
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.

DNTA 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DNTA 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DNTA 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DNTA 296 Work-based Learning Experience 1-18
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.

CREDITS

DNTA 297 Work-based Learning Seminar 1-2
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.

DNTA 298Work-based Learning–No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

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DENTAL LAB TECHNICIAN

Program Requirements: A minimum GPA of 2.0 must be obtained in all DENLB courses before progressing on to the new quarter.

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.

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. Prerequisite: DENLB 101 or instructor permission

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 to include impression materials, gypsum products, waxes, separating mediums and resin materials. Prerequisite: DENLB 102 or instructor permission

DENLB 104 Denture Processes I 4
This course is designed to provide students with an introduction to the first laboratory processes involved in complete denture construction. The student will evaluate preliminary and final edentulous impressions, construct custom trays, baseplates and occlusal rims, and identify types and uses of articulators. Prerequisite: DENLB 103 or instructor permission

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. Prerequisite: DENLB 104 or instructor permission

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 and how it functions. Prerequisite: DENLB 105or instructor permission

DENLB 107 Denture Processes III 4
This course introduces the student to the fabrication techniques of an immediate denture, denture repairs, relines & rebases. Prerequisite: DENLB 106 or instructor permission

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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. Prerequisite: DENLB 107 or instructor permission

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. Prerequisite: DENLB 108 or instructor permission

DENLB 111 Orthodontic 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. Prerequisite: DENLB 110 or instructor permission

DENLB 112 Orthodontic 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. Prerequisite: DENLB 111 or instructor permission

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. Prerequisite: DENLB 112 or instructor permission

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 spring through finishing. The student will then fabricate a Class I RPD framework. Prerequisite: DENLB 120 or instructor permissions.

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. Prerequisite: DENLB 121 or instructor permission

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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. Prerequisite: DENLB 122 or instructor permission

DENLB 124 Advanced Dentures 3
In this course students will apply the theoretical knowledge and their experience with the step-by-step process of an advanced denture using their basic learning skills. Prerequisite: DENLB 123 or instructor permission

DENLB 125 Advanced Orthodontics 3
In this course students will apply the theoretical knowledge and their experience with the step-by-step process of an advanced orthodontic appliance using their basic learning skills. Prerequisite: DENLB 123 or instructor permission

DENLB 126 Advanced RPD's 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. Prerequisite: DENLB 123 or instructor permission

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. Prerequisite: DENLB 124/125/126 or instructor permission

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. Prerequisite: DENLB 201 or instructor permission

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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. In addition, the student will be introduced to digital scanning and design techniques learning the basic tools. Prerequisite: DENLB 202 or instructor permission

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, malaligned teeth versus ideal teeth and the physiology of mandibular movements as they relate to the fabrication of dental restorations.
Prerequisite: DENLB 203 or instructor permission

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. Prerequisite: DENLB 204 or instructor permission

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. Prerequisite: DENLB 205 or instructor permission

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 In addition; the student will be introduced to digital scanning and design techniques learning the basic tools. Prerequisite: DENLB 206 or instructor permission

DENLB 208 Ethics, Jurisprudence & 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. Prerequisite: DENLB 207 or instructor permission

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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. Prerequisite: DENLB 208 or instructor permission

DENLB 211 Ceramic III 4
This course will assist the student in following the step by step processes in the fabrication of Emax pressable porcelain crowns & veneers. In addition, the student will be introduced to digital scanning and design techniques learning the basic tools.
Prerequisite: DENLB 209 or instructor permission

DENLB 212 Computer Aided Design/ Computer Aided Manufacturing CAD/CAM 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 learn to use more complex tools in computer aided design and manufacturing of individual copings and full wax units.
Prerequisite: DENLB 211 or instructor permission

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. Prerequisite: DENLB 212 or instructor permission

DENLB 214 Advanced Crown and Bridge 3
In this course students will apply the theoretical knowledge and their experience with the step-by-step process of an advanced project using their basic learning skills. Prerequisite: DENLB 212 or instructor permission

DENLB 215 Advanced Dental Ceramics 3
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. Prerequisite: DENLB 212 or instructor permission

CREDITS

DENLB 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. Prerequisite: DENLB 212 or instructor permission

DENLB 296 Work-based Learning Experience 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.

DENLB 297 Work-based Learning 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.

DENLB 298 Work-based Learning– No Seminar 4
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

DENTURIST

CREDITS

DNTU 101 Asepsis, Infection, Hazard Control 2
Students train in safety procedures including OSHA/ WSHA and infection control compliance for denturist's 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.

DNTU 102 Biological Concepts 3
Students study cell biology, microbiology, developmental embryology, and histology with an emphasis on the oral cavity

DNTU 103 Introduction to Complete Denture Prosthodontics 3
This course covers the basic anatomy of the residual ridge 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.

DNTU 104 Baseplates and Occlusion Rims 2
Students fabricate base plates and rims using various materials in preparation for setting teeth

DNTU 105 Tooth Selection and Set I 3
Students learn proper tooth selection and ordering techniques and then start their required lab setups.

DNTU 106 Dental Materials I 2
This course discusses the various acrylics and materials involved in the processing and finishing of patient appliances.

DNTU 107 Denture Techniques 2
This course covers the wax up, processing , and other lab steps needed to supply a proper prosthesis for a patient.

DNTU 108 Denture Fabrication I 2
Students complete waxups and flasking of practice cases in complete and partial dentures.

DNTU 109 Dental Office Management I 1
Students learn proper patient record keeping and individual policy and informational hand outs are completed in preparation for actual clinical cases.

DNTU 110 Head Anatomy and Physiology I 2
Students are introduced 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.

DNTU 111 Tooth Selection and Set II 1
A continuation of the concepts introduced in DNTU 105, students practice with further required lab setups.

CREDITS

DNTU 112 Medical Emergencies 3
Students demonstrate 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 patient care.

DNTU 114 Clinical Denture Fabrication 1
Students learn to process denture and partials cases as well as pre-insertion procedures.

DNTU 115 Partial Dental Casts 2
Students are introduced to the area of removable partial dentures including theory, clinical classification, and evaluation.

DNTU 116 Framework Design - RPD 3
Students learn to survey study models and design practical cases.

DNTU 117 Dental Office Management II 2
Students learn proper scheduling , billing, and HIPPA privacy requirements.

DNTU 118 Clinical Denture Procedures I 2
Students learn proper room setup and teardown procedures for clinical cases along with clinical instrument processing.

DNTU 119 Dental Impressions Procedures I 2
Clinical impressions are performed on patient cases assigned by instructors.

DNTU 120 Head Anatomy and Physiology II 3
This course completes the remaining anatomical systems not covered in DNTU 110.

DNTU 121 Tooth Selection and Set III 1
Students complete their required practice lab setups.

DNTU 123 Complete Denture Repair I 2
Students complete denture repairs on practical and clinical cases.

DNTU 124 Casts - Partials 2
After completing cast designs, students learn and perform proper block-out techniques in preparation for cast duplication of practical cases.

DNTU 125 Oral Pathology 2
Continuation of DNTU 135. Students learn what are normal findings and abnormal findings needing referral. Students learn the causes of clinically evident pathology; including infection, developmental disorders, nutritional and metabolic disorders, trauma and outside irritants.
Radiographic findings are studied where applicable as well as passing written exams

DNTU 126 Clinical Denture Procedures II 2
Students perform the required lab and clinical work on assigned patient cases toward their program completion.

CREDITS

DNTU 127 Dental Impressions Procedures II 2
Student perform impressions, bite registrations and proper mounting on clinical cases assigned during this semester

DNTU 128 Fabrication Clinical II 1
Students complete the required clinical cases assigned to them this semester.

DNTU 129 Polish Methods – RDP Frames 1
Students learn proper techniques to fit, adjust, and polish frameworks prior to processing.

DNTU 131 Wax Patterns - Partials 4
Students perform framework waxups on assigned practical cases.

DNTU 132 Teeth Arrangement - RPD 2
Students learn to set teeth in partials opposing dentures, other RPDs or natural teeth.

DNTU 233 Finish Methods - RPD 1
Students learn to properly flask, process, and remount RPD cases in preparation for insertion.

DNTU 135 Introduction to Oral Pathology 3
Students finish their study of various oral pathologies and learn how to do proper referrals and consultations.

DNTU 136 Clinical Denture Procedures III 2
Students perform the required lab work on assigned patient cases.

DNTU 138 Fabrication Clinical III 2
Students complete the required clinical cases assigned them during this semester.

DNTU 201 Complete Denture Repair II 2
Students learn the proper techniques used to accomplish complex repairs on dentures.

DNTU 203 RPD Repair Methods 3
Students learn those techniques unique to partial dentures.

DNTU 204 Dental Office Management IV 2
Students continue to manage all office aspects of their patient cases to include scheduling appointments, record keeping, billing, and behavior management, where possible, toward the completion of their patient cases.

DNTU 205 Denture Adjustments 1
Students perform post –insertion adjustments of their clinical cases as needed.

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.

CREDITS

DNTU 207 Malocclusions 2
Students study different occlusal schemes and perform face-bow remounts and occlusal corrections of clinical cases where needed.

DNTU 208 Clinical Denture Procedures IV 2
Students continue to complete their clinical cases and are given opportunities to practice unique, specialized technique found in industry.

DNTU 210 Geriatric Patient Needs 3
Students learn the many unique requirements of the geriatric patient, both physically and psychologically.

DNTU 211 Fabrication Clinical IV 2
Students complete their remaining clinical cases to reach the minimum required number.

DNTU 212 Alternative RPD Systems 2
Alternatives to metal framework RPDs are discussed in the course.

DNTU 213 Implant and Precision Attachments 1
Students study the history of implants and the numerous systems available for use.

DNTU 214 Advanced Special Services 1
Students learn advanced concepts and techniques related to denture practices and non-orthodontic appliances

DNTU 215 Advanced Dental Appliances 1
Students discuss and when available work on advanced cases such as gasket retained dentures, swing –lock and dual-path RPDs.

DNTU 220 Dental Office Management V 2
Students continue to manage all office aspects of their patient cases to include scheduling appointments, record keeping, billing, and behavior management, where possible, toward the completion of their patient cases.

DNTU 222 Fabrication Clinic V 3
Students insert and make all appropriate adjustments to their assigned patient cases to bring finishing with a total of ten patient cases.

DNTU 223 Dental Office Management VI 2
Students insert and make all appropriate adjustments to their assigned patient cases to bring finishing with a total of ten patient cases.

DNTU 229 Clinical Denture Procedures V 2
Students continue to complete their clinical cases and are given opportunities to practice unique, specialized techniques found in industry

CREDITS

CREDITS

DIESEL/HEAVY EQUIPMENT MECHANIC

CREDITS

DIESL 103 Introduction to Hydraulic Systems 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. Concurrent enrollment: DIESL 104

DIESL 104 Diagnosis and Testing of Hydraulic Systems 2
A continuation of the concepts introduced in DIESL 103, students learn to diagnose and test a variety of hydraulic components and systems. Concurrent enrollment: DIESL 103

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 103, 104, 106, 107, 108, and 109 or instructor permission.

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 103, 104, 105, 107, 108, and 109 or instructor permission.

DIESL 107 Engine Systems 1
A continuation of the concepts introduced in DIESL 106, students learn to identify engine systems and their component parts. Concurrent enrollment: DIESL 103, 104, 105, 106, 108, and 109 or instructor permission.

DIESL 108 Engine Reassembly 4
Students perform procedures for overhauling heavy-duty diesel engine including disassembly, cleaning and inspection, adjustments, and reassembly. Concurrent enrollment: DIESL 103, 104, 105, 106, 107, and 109 or instructor permission.

DIESL 109 Fuel Systems 2
This course is an introduction to hydro-mechanical and electronic diesel fuel systems with emphasis on the analysis of fuel system components and system operational characteristics. Concurrent enrollment: DIESL 103, 104, 105, 106, and 107 or instructor permission.

DIESL 110 Introduction to Air Brakes 2
The operating principles of pneumatic brakes including ABS, roll stability, and collision avoidance are presented.

CREDITS

DIESL 111 Introduction to Basic Electrical Systems 4
Students are introduced 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 or instructor permission

DIESL 112 Electrical Systems Application 4
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 111 or instructor permission

DIESL 113 Electronic Engine Systems 3
Students are introduced 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 111 and 112 or instructor permission.

DIESL 114 Mobile Air Conditioning Systems 3
Students are introduced to 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 111, 112, 113, or instructor permission.

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.

DIESL 116 Manual Transmission Service 3
Students provide 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.

DIESL 117 Automated Manual Transmission Service 2
Students are introduced to design characteristics, operation and basic troubleshooting of automated manual transmissions. Concurrent enrollment: DIESL 115, 116, 118, 119, 120, 121, 122 or instructor permission.

DIESL 118 Clutch Service 2
Students learn 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, 116, 117, 119, 120, 121, 122 or instructor permission.

CREDITS

DIESL 119 Automatic Transmission Service 2
Students gain a 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, 116, 117, 118, 120, 121, 122 or instructor permission.

DIESL 120 Driveline Service 1
Students gain a fundamental understanding of the principles of operation, maintenance procedures, and analysis of vibrations for driveline systems. Concurrent enrollment: Diesl 115, 116, 117, 118, 119, 121, 122 or instructor permission.

DIESL 121 Differentials/ Final Drive 2
Students provide 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, 116, 117, 118, 119, 120, 122 or instructor permission.

DIESL 122 Wheel End Service 1
Students learn the correct inspection and installation procedures for standard and unitized wheel ends used on heavy duty trucks Concurrent enrollment: Diesl 115, 116, 117, 118, 119, 120, 121 or instructor permission. NOTE: Students must complete 100-level coursework with a cumulative 2.0 GPA before continuing into the 200-level coursework.

DIESL 201 Basic Vehicle Service 11
Course emphasis is on the theory and practices for the tune up and troubleshooting of diesel engines including air, fuel, lube and cooling systems.

DIESL 203 Advanced Service Applications 5
Students apply their understanding 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.

DIESL 204 Employment Preparation 2
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

CREDITS

DIESL 205 Advanced Service Techniques 15
Student demonstrate capabilities to inspect (trouble-shoot, analyze/diagnose, test), remove and repair or replace components or systems to 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, and air conditioning and refrigeration systems.

DIESL 291 Practical Applications 1-18
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.

DIESL 292 Independent Projects 1-5
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.

DIESL 293 Independent Projects 1-5
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.

DIESL 296 Work-based Learning Experience 14
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.

CREDITS

CREDITS

DIGITAL MEDIA

DIGIT 101 Digital Imaging 2
Students learn to create and enhance digital images using a scanner and digital imaging software.

DIGIT 102 Image Editing 5
Students learn to edit and manipulate digital images using several image-editing applications.

DIGIT 103 Graphic Generation I 5
This course is an introduction to the various techniques used to set up and operate various graphic generation devices: character generators, paint box generators, and still-store devices.

DIGIT 104 Introduction to Computers 5
Students are introduced to digital media concepts featuring digital media hardware and software tools and techniques, survey of digital media applications, and issues relating to the use of digital media. They learn to use text, graphics, audio, video, animation, and interactivity in a project.

DIGIT 120 Introduction to Digital Media Concepts 4
This course is an introduction to the methods used to communicate ideas through the use of computer-based interactive multimedia technology.

DIGIT 121 Production Process I 5
The production process and various program formats are presented. The computers and software used to develop storyboards, budgets, fact documents, time-lines, and schedules is also presented.

DIGIT 122 Production Process II 4
Students learn to create various forms of production materials from idea to the finished project: public service announcements (PSA), commercials, news stories, and music videos.

DIGIT 123 Production Process III 4
Students initiate and complete a variety of media project s (CD ROM, video, web) using advanced production process skills.

DIGIT 130 Production Editing I 3
This course is an introduction to the methods used to set up editing and support equipment to edit on machine-to-machine systems as well as computer controlled "AB roll" systems.

DIGIT 131 Production Editing II 3
A continuation of the concepts introduced in DIGIT 131, students apply advanced editing skills to a variety of equipment and systems.

CREDITS

DIGIT 132 Digital Media – Video 5
This course is an introduction to the fundamentals of digital video, video recording, video processing, video delivery, and the incorporation of digital video into a computer-based media project.

DIGIT 133 Advanced Editing Project 5
Students conduct and complete an advanced digital editing project for a datacast application.

DIGIT 140 Copyright and Ethics 2
This course is an introduction the legal and ethical concepts of copyright issues as they pertain to the broadcast/datacast industry.

DIGIT 141 Desktop Presentations I 5
This course is an introduction to the methods used to apply visual elements, edit, and modify presentations.

DIGIT 142 Desktop Presentations II 5
A continuation of the concepts introduced in DIGIT 141, student apply advanced methods to create and modify presentations.

DIGIT 143 Digital Media – Animation 5
Students learn to add motion to digitally produced images to enhance the intent of a computer-based project.

DIGIT 145 Digital Media – Audio 5
This course is an introduction to the fundamentals of digital sound, sound recording, sound processing, sound delivery, and the incorporation of sound into a computer-based media project.

DIGIT 210 Pre-Production Project I 5
This course will provide the student the opportunity to plan a series of self-designed projects using digital media terms, processes and the student's individual creativity. This course will help build self-responsibility to the creative process, inspire independent thinking, and provide opportunity to use tools like mood boards, scripts and storyboards.

DIGIT 211 Production project I 5
Students complete a series of practical digital media productions related to the pre-production process designed in Digit 210. Student will create and use scheduling, on set protocols, camera or animation software to produce a series of digital media packages.

DIGIT 212 Post-production I 5
This course will provide the student the opportunity to edit a series of digital media projects they have produced. Students will build post production skills such as file management, storytelling elements, audio mixing and color correction application.

CREDITS

DIGIT 220 Pre-Production Project II 5
This course will provide the student the opportunity to refine their pre-production process with a series of digital media projects. Students can choose from a list of commonly designed digital media content. Students will learn the planning differences between social media, television commercials and content marketing materials.

DIGIT 221 Production Process Project II 5
Students complete a series of practical digital media productions related to the pre-production process designed in Digit 220. Student will use their experiences from 211 to refine the production process, use studio of field lighting and audio to complete their productions.

DIGIT 222 Post-Production II 5
This course will provide the student the opportunity to edit a series of digital media projects produced in Digit 211. Students will build post production skills such as mastering the audio stems, ad graphic titles and animations while utilizing the latest digital media software.

DIGIT 291 Practical Applications 1-18
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.

DIGIT 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DIGIT 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

DIGIT 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

DIGIT 296 Work-based Learning Experience 1-18
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.

DIGIT 297 Work-based Learning Seminar 1-2
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.

DIGIT 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

EARLY CHILDHOOD EDUCATION

ECE 105 Introduction to Child Care / Early Education 5
This course is an introduction to the personal and professional standards of ethical conduct, philosophies, and developmental theories related to the nurturing and teaching of young children.

ECE 102 Early Education 3
This course is an introduction to the developmental theories related to the nurturing and teaching of young children.

ECE 103 STARS 2
This course provides basic child care training for child care center teachers, program supervisors and directors. Its purpose it to provide entry-level employees with a basic core knowledge and motivation to see more early childhood education training.

ECE 104 Learning Environments 5
This course is an introduction to the methods used to develop developmentally appropriate learning environments. Students identify, demonstrate, and evaluate criteria for planning learning environments for young children including the selection of equipment, materials, and supplies and the best use of physical space.

ECE 105 Early Childhood Lab I 2
Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 106 Growth, Development and Learning 4
This course is an introduction to the many stages of child growth and learning including, the concept of sequential stages of development, factors influencing growth and learning, the definition and application of developmental appropriateness, and an introductions to methods of observing and recording children's development.

CREDITS

ECE 107 Physical Development 4
The developmental sequence of children's physical skills introduced with emphasis on the equipment used to foster gross and fine motor skills and enhance sensory development.

ECE 108 Emotional and Social Development 5
This course is an introduction to the 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.

ECE 109 Child Guidance 5
This course is an introduction to the factors that affect the behavior of children with emphasis on positive guidance strategies. Topics include age-appropriate positive reinforcement, guidance, and discipline. The impact of family and cultural values on behavior and the effect of environment and activities on self-discipline is also included.

ECE 110 Cognitive Development 5
This course is an introduction to the theories of child development and the factors that influence children's cognitive development. Topics include the identification of milestones in the development of cognitive skills, recognition of the developmental sequence of communication skills, and the application of individual learning styles.

ECE 111 Early Childhood Lab II 2
Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 201 Issues in Child Care / Early Education 5
This course provides an opportunity to discuss the issues in child care that impact children and their world: ethical, legal, political, professional, diversity, and family/cultural values.

CREDITS

ECE 202 Children with Special Needs 5
This course is an introduction to the characteristics and assessment of children with special needs and strategies for adapting the learning environment. Working with the child, family, and supportive community/educational agencies and the implications of the Americans with Disabilities Act (ADA) for Child Care/Early Education programs is also included.

ECE 203 Observation and Assessment 4
The primary domains of development (physical, social, emotional, cognitive and creative) and how they are integrated for each child are emphasized. Students develop skills in observing and recording children's growth, development, and learning and use observations as tools for obtaining information about individual children and their needs.

ECE 204 Early Childhood Lab III 2
Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 205 Instructional Strategies 5
Methods of individual or group instruction and the role of the teacher/caregiver is emphasized. Students explore the theory of learning styles and their practical application in enhancing individual children's learning.

ECE 206 Curriculum Development 5
The creation of developmentally appropriate curriculum for early childhood programs is emphasized. This course looks at contemporary philosophies and current best practices in curriculum activities, methods, and materials appropriate for planning a program for young children.

ECE 207 Professionalism 5
The application of the profession's code of ethics and advocacy for children and families. is emphasized. Students also develop a professional portfolio and create a resource file of professional publications and organizations.

ECE 208 Family Dynamics 5
Emphasis is on the understanding of family structures and techniques of supportive interactions with families. Parent involvement, education, conferences, and referrals are also included.

CREDITS

ECE 209 Program Management 5
This course emphasizes the principles and skills needed to manage childcare and/or various early education programs: licensing regulations; food programs; community resources; budgeting; record keeping; and staff selection, support, supervision, and training. Practical applications include the research and development of a project that focuses on an appropriate topic for presentation.

ECE 210 Early Childhood Lab IV 2
Students spend time in a child care/early education setting, practicing and developing teaching skills, planning/implementing/evaluating children's activities, and participating in curriculum planning with their on-site supervising teacher/director. Students schedule and participate in conferences with their on-site supervisor and program instructor to evaluate their skill development and training progress.

ECE 291 Practical Applications 1-18
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.

ECE 292 Independent Projects 1-5
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ECE 296 Work-based Learning Experience 1-18
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.

CREDITS

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ECE 298 Work-based Learning – No Seminar 1-18
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CREDITS

CREDITS

ELECTRICAL CONSTRUCTION

ELCON 101 Introduction to Electrical Construction 3
This course is an introduction to the electrical construction field. OSHA, WISHA, and occupationally specific safety guidelines and standards are emphasized. Students also receive training in first aid and CPR and will receive a First Aid card upon completion.

ELCON 102 Applied Physical Science 5
This course is an introduction to the physical sciences as they apply to the electrical field: electrical theory, Ohm's law, Watt's law, and the relation of current, resistance, and voltage.

ELCON 103 Hand and Power Tools 4
Students are introduced to tools, equipment, and processes common to the electrical industry. The safe operation and care of hand and power tools is emphasized.

ELCON 104 Electrical Service Installation 4
Students learn to install basic service components. Students will install load centers, over current protection devices and terminate wires.

ELCON 105 Electrical Components 4
Students will learn how to select the proper size load centers, conductor sizes for the load centers and select the proper size over current protective devices needed.

ELCON 106 Introduction to Residential Wiring 3
This part of the course is an introduction to the field of residential wiring methods, materials, and basic techniques needed for residential wiring.

ELCON 107 National Electric Code 4
The National Electrical Code and its application to the safe installation of electrical conductors and equipment is presented.

ELCON 108 NFPA 70E Standard 4
This course offers a comprehensive study of NFPA 70E Standards and its safety application to the electrical field.

ELCON 109 Residential Design 3
Practical application of National and regional electrical codes as they apply to residential buildings.

ELCON 110 Residential Wiring Techniques 3
This is a continuation of ELCON 106 learned concepts. An advanced class on residential wiring techniques such as advanced planning, conductor sizing, special tool usage, the electrical bidding permitting process.

CREDITS

ELCON 111 Systems Troubleshooting 3
Students will learn the art of troubleshooting electrical systems using the proper testing equipment and techniques in a safe manner.

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.

ELCON 113 Blueprint Reading Applications 5
A continuation of the concepts introduced in ELCON 202, students learn to interpret prints found in a set of construction drawings and understand their relationship to various electrical installations.

ELCON 201 Specialty Tools 4
Students learn to operate common electrical field specialty tools including a variety of power tools, testing and measurement equipment, and commercial and industrial equipment.

ELCON 202 Commercial Wiring 3
This course is a basic introduction to the field of commercial wiring.

ELCON 203 Commercial Codes and Regulations 3
Students learn the basic national and local electrical codes pertaining to commercial buildings.

ELCON 204 Commercial Material Identification 3
Students are introduced to commercial specific construction materials.

ELCON 205 Commercial Installation 3
Students are introduced to installation standards specific to commercial buildings.

ELCON 206 Industrial Wiring 3
This course is a basic introduction to the field of industrial wiring.

ELCON 207 Industrial Material Identification 3
Students are introduced to industrial specific construction materials.

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ELCON 208 Industrial Installation 3
Students are introduced to installation standards specific to industrial applications.

ELCON 209 Industrial Hazards 3
This course introduces students to industrial specific safety hazards and techniques to avoid them.

ELCON 210 Motors and Controllers 4
This course introduces the student to electrical motors and the various ways motors are started, stopped and controlled for electrical installations.

ELCON 211 Project Estimation 5
Students learn the basics of jobsite estimation, including material estimation, labor and time management.

ELCON 212 Control Circuits 3
Students learn how and why various ways motors can be controlled.

ELCON 213 Motor and Controllers Applications 3
Students learn techniques to build, wire and troubleshoot various motor controllers.

ELCON 214 Transformers 3
This course offers students basic knowledge of electrical transformers, why they are needed, how to install them and basic working knowledge of electrical transformation.

ELCON 215 Advanced Motor Controls 3
This course builds on concepts learned in ELCON 212 and ELCON 213. Students learn advanced techniques to motor control such as variable frequency drives and Programmable logic.

ELCON 220 Advanced Projects I 10
Students participate in professional applications project.

ELCON 221 Advanced Projects II 10
Students participate in professional applications project.

ELCON 222 Advanced Projects III 10
Students participate in professional applications project.

ELCON 223 Advanced Projects IV 10
Students participate in professional applications project.

ELCON 291 Practical Applications 1-18
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.

CREDITS

ELCON 292 Independent Projects 1-10
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.

ELCON 293 Independent Projects 1-10
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.

ELCON 294 Independent Projects 1-10
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.

ELCON 296 Work-based Learning Experience 1-18
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.

ELCON 297 Work-based Learning Seminar 1-2
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.

ELCON 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

ELECTRICAL ENGINEERING TECHNICIAN

ETRIC 111 Fundamentals of Drafting 2
Students learn drafting terms and select and use drafting equipment, as well as lettering, line work, sheet layouts and scales.

ETRIC 112 Electrical Math Fundamentals 2
Mathematics specific to engineering is introduced including Ohm's Law, electronic units and measurements, application of fractions, decimals, percentage, and whole numbers. Calculations with negative numberings, squares, square roots, and exponents are emphasize, as well as series, parallel, and combination circuit.

ETRIC 114 Fundamentals of Electricity 4
This course provides an overview of atomic structure, electrical properties, and electrical theory. Parallel, series, and combination circuit are studied. Students are introduced to resistors, conductors, and problems are solved using Ohm's Law.

ETRIC 116 Applied Communications 2
This course is an introduction to communication skills and their application to the electrical engineering field. Areas of emphasis include methods of improving communication, clarity, and graphic aids.

ETRIC 117 Electrical Math 3
This course focuses on electronic formulas and solutions. Resistance of wires, types, and sizes are applied to voltage drop calculations, transformers, and meter movements.

ETRIC 118 Applied Electrical Math 4
Application of math concepts to engineering problems in electrical circuits, power efficiency , wire sizing, and grounding is emphasized. Problems in inductance, capacitance, and impedance are solved. Transformers are studied and three-phase calculations are performed. Logic control concepts and solid state circuits are introduced.

ETRIC 123 Electrical Principles 4
This course is an introduction to basic electronic principles including the vocabulary of electronics, processes, and principles. Magnetism, batteries, meters, and AC/DC principles are studied. Problems with conductors, insulators, and voltage drops are solve. Series, parallel, and combination circuits are explored.

ETRIC 124 Drafting Applications 3
A continuation of the concepts introduced in ETRON 130, students apply such technical drafting practices as lettering, metric construction, technical sketching, orthographic projection, sections, and auxiliary views.

ETRIC 125 Engineering Drafting 3
Students are introduced to the theory and application of dimensioning and tolerances, pictorial drawing, and preparation of construction drawings .

CREDITS

ETRIC 129 Applied Electrical Principles 4
Principles of inductance, capacitance, and impedance are studied. Students are introduced to transformers and power supplies. Solid state circuits, devices, and logic are studied.

ETRIC 134 Elements of Physics 2
This course is an introduction to the mechanics and properties of matter including magnetism, electricity, fiber optics, atomic structure and nuclear energy as they relate to engineering. Sound and wave motion, light and optics are applied to design of lighting, low voltage signal systems, and power circuits.

ETRIC 135 Technical Communications 3
Students learn written and oral communication techniques to express technical information in engineering. The development of writing skills necessary to plan and write technical formatted documents is emphasized. Students also develop resumes and cover letters.

ETRIC 136 Applied Physics 4
Students learn properties of light, sound, temperature, and heat transfer as they relate to the electronics industry. Principles of light, refraction, reflection, and color are studied in their relationship to light sources and luminaires.

ETRIC 137 CAD Fundamentals 3
This course is an introduction to the hardware, software, operation, and technical language of computer-aided drafting. Drawing setup, file management, and drawing aids are introduced as well as line and text commands.

ETRIC 140 Intermediate CAD 3
A continuation of the concepts introduced in ETRIC 132, students use CAD systems to produce and edit drawings, Passwords, log on, and system security are introduced. Commands include text editing, drawing rotation, and mirror and cross hatching.

ETRIC 141 National Electrical Code 3
The course is an introduction to the National Electric Code including terminology, definitions, format, and blueprint reading. Basic electrical code for various buildings classifications are covered. Wiring methods and materials, protective devices, selection, and sizing of conduit and conductors are also included.

ETRIC 142 Codes Applications I 3
Requirements of overload and fault current protection are studied. Branch circuits and feeders for motors and general power loads are selected in accordance with codes. Grounding and bonding requirements are covered.

ETRIC 143 Fundamentals of Power Systems 3
Students learn to draft one-line and riser diagrams. Emphasis is on the selection and application of wires, over current devices, raceways, and equipment.

CREDITS

ETRIC 145 Technical Communications 3
Students learn written and oral communication techniques to express technical information in engineering. The development of writing skills necessary to plan and write technical formatted documents is emphasized. Students also develop resumes and cover letters.

ETRIC 146 Physics for Engineers 2
This course is an introduction to the mechanics and properties of matter including magnetism, electricity, fiber optics, atomic structure and nuclear energy as they relate to engineering. Sound and wave motion, light and optics are applied to design of lighting, low voltage signal systems, and power circuits.

ETRIC 171 Electrical Math 4
This course focuses on electrical formulas and solutions. Resistance of wires, types, and sizes are applied to voltage drop calculations, transformers, and meter movements.

ETRIC 172 Electrical Math II 4
Application of math concepts to engineering problems in electrical circuits, power efficiency, wire sizing, and related calculations are emphasized. Problems in inductance, capacitance, and impedance are solved. Transformers are studied and three-phase calculations are performed. Logic control concepts and solid state circuits are introduced.

ETRIC 204 Essentials of Electrical Systems Design 2
This course is an introduction to the basic principles of electrical systems design including, project budgets, organization, and scheduling. Sheet layout and drawing order are determined. Preliminary lighting calculations are performed and preliminary electrical drawings are made.

ETRIC 205 Fundamentals of Lighting Systems 3
Lighting design, color rendition, visual comfort, efficiency of sources, aesthetic appeal and photometric performance of fixtures are emphasized.

ETRIC 206 Fundamentals of Low-Voltage Systems 2
Fire alarm, security, voice, and data components and layouts are reviewed.

ETRIC 207 Fundamentals of High-Voltage Systems 3
Transmission and distribution voltage systems and equipment are introduced. Load calculations are performed for primary voltage systems.

CREDITS

ETRIC 210 Advanced Power Systems 4
Students learn system and equipment grounding and various types of raceways. Emphasis is on the selection and application of wires, over current devices, raceways, and equipment.

ETRIC 225 Advanced CAD Operations 3
Students use CAD systems to produce engineering drawings using layers, masks, and groups. Symbols and x-reference are applied; drawings are printed and plotted.

ETRIC 227 Introduction to Commercial Electrical Systems 4
Commercial project development, design team concepts, timelines, and sequence of design are emphasized. Students learn layout and circuiting of basic power devices. Luminaires are compared and selected.

ETRIC 228 Electrical System Design Applications 4
Design projects and apply skills to draft, select, specify equipment, lighting calculations/design, service and power distribution calculations/design, and systems design and layout. Prepare construction cost estimates and bids.

ETRIC 230 Intermediate Electrical System Design 5
The focus of this course is on three-phase loads: calculation and circuiting of heating equipment and motor loads. Students work in project design teams to select and draft lighting fixture and controls, power distribution equipment, and circuiting.

ETRIC 234 CAD Design Applications 4
Students use CAD to draw electrical diagrams and schedules. Floor plans, power, and lighting plans are drawn and edited; notes and legends are added.

ETRIC 240 Commercial Electrical Design Applications 4
Students assist project design teams to design and draft electrical systems and power distribution equipment. Lighting is selected, final calculations are made and circuited, and fixture and panel schedules are developed.

ETRIC 242 Fundamentals of Cost Estimating 2
The course is an introduction to concepts and current cost estimating practices. Emphasis on elements of electrical construction, competitive bidding, and complete and accurate time and material take-offs. Various forms and formats are introduced.

CREDITS

ETRIC 243 Construction Cost Estimating 3
This course is an introduction to the estimate and preparation of the electrical project bids. Impact of specifications, substitutions, prime and sub-contractors are stressed. Labor factors and materials cost data base are introduced.

ETRIC 246 Advanced Electrical System Design 5
Advanced students lead project design teams. The building service is designed and main panel selected. Circuits and panel loads are balanced, final load calculations are added as the drawings are completed. Dry-type transformers are introduced. Special design factors are incorporated for hazardous locations.

ETRIC 247 Codes Applications II 5
THE NEC is studied in depth through student design projects. Code requirements are applied to the design of heating and motor circuits and feeders. Lighting and controls are specified in accordance with codes. Code compliant service entrance wires and equipment are selected. Codes for hazardous and specialized locations are interpreted and applied.

ETRIC 248 Construction Specifications 3
This course is an introduction to the content, format, and basic principles of specification development and interpretation. Areas of emphasis include specifications as a legal and technical construction. Terms of design and construction, as well as the interrelationship of specifications in bidding are also included.

ETRIC 291 Practical Applications 1-18
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.

ETRIC 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ETRIC 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

ETRIC 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ETRIC 296 Work-based Learning Experience 1-18
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.

ETRIC 297 Work-based Learning Seminar 1-2
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.

ETRIC 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

CREDITS

ELECTRONIC AND COMMUNICATONS SYSTEMS TECHNOLOGY

CREDITS

ECS 201 Telecommunications Network Cabling Systems 5
This course provides students with the skills necessary to take and pass industry certification exam for Network Cabling Specialist. Students train in termination, testing and troubleshooting copper based network to include twisted pair and coaxial cabling systems. Instruction includes lecture and lab on various pin, jack and termination block configurations. All construction and testing will conform to industry standards and specifications.

ECS 202 Fiber Optics 5
Applications of fiber optics, including telecommunications, CATV and computer networks, focusing on the technology, the components and their installation are covered in this course. Students utilize fiber specific equipment to learn and apply the fiber technology and perform fiber termination and testing.

ECS 203 FCC Licensure Prep I 5
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. Students who pass Element 1 will receive their Marine Radio Operators Permit.

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.

ECS 205 Wireless/RF Communications 4
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.

ECS 206 Wireless Personal Area Networks 2
Personal, short distance area Wireless networks for interconnecting devices centered on 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.

CREDITS

ECS 207 Wireless Local Area Networks 3
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.

ECS 208 Wireless Broadband Networks 4
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.

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.

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.

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.

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.

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. Wireless telephony operations include AMPS, PCS, CDMA, GSM and TDMA.

CREDITS

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.

ECS 216 Advanced Communications 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.

ECS 230 Telecommunications Fundamentals 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 laptop computer, and a computer aided instruction online platform to complete training.

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.

ECS 232 Microwave Lab Fundamentals 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.

ECS 233 Signal 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 shift 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.

CREDITS

ECS 236 RF Communications Lab 5
Students work with amplitude and frequency modulation transceivers, performing alignments, tests and measurements, with a focus on troubleshooting. Students learn about transceivers, while interfacing with communication equipment such as signal generators, frequency counters, oscilloscopes, and communication systems analyzers.

ECS 237 Telecommunications Lab 5
This course includes a comprehensive computer interactive training system with complete courseware, supported by lab and experimentation. Lessons include advanced modulation and signal processing techniques such as pulse code modulation, frequency and phase shift keying, and multiplexing schemes such as time and frequency division multiplexing. Students train on microwave communication systems and set up wireless transmit/receive links. In addition, students acquire the skills needed to understand basic telephone, telecommunications and fiber optic systems.

ECS 249 Job Search and Preparation 3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

ECS 290 Independent Study I 3-5
This course offers students an opportunity to work independently on a subject/theme that is determined by both the instructor and the student. Subject matter should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ECS 291 Independent Study II 3-5
This course offers students an opportunity to work independently on a subject/theme that is determined by both the instructor and the student. Subject matter should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ECS 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ECS 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

ECS 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

ECS 296 Work-based Learning Experience 1-18
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.

ECS 297 Work-based Learning Seminar 1-2
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.

ECS 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

ELECTRONIC EQUIPMENT SERVICE TECHNOLOGY

EEST 101 Safety Principles 3
This course is an introduction to safety practices required when working in the electronic equipment environment.

EEST 102 Applied Math 5
This course is an introduction to mathematical theory and applications as they relate to the electronic circuits and the electronic equipment field.

EEST 103 Electronics Principles I 5
This course is an introduction to the theory and fundamentals of basic DC electronic circuits.

EEST 104 DC Electronics 4
This course is an introduction to the theory and fundamentals Ohm's law, series, and parallel circuits

EEST 105 AC Electronics 5
This course is an introduction to the theory and fundamentals of the sine wave, wavelength, and the frequency of the AC circuit.

EEST 106 Inductors and Capacitors 4
This course is an introduction to the theory and fundamentals of the reactance of the inductor and the capacitor in the AC circuit.

EEST 107 Electronics Principles II 5
This course is an introduction to the theory and fundamentals of basic AC electronic circuits.

EEST 108 Amplifiers and Transistors 4
This course is an introduction to the theory and fundamentals of basic amplifiers and transistors.

EEST 109 Electronic Devices 2
This course is an introduction to the theory and fundamentals of basic electronic devices: such as diodes, transistors, SCR, triac, and FET.

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.

EEST 201 Electronic Principles - Automation 5
This course is an introduction to the theory and fundamentals of basic Ladder logic programming.

CREDITS

EEST 202 Antenna and Satellite Systems 3
This course is an introduction to the theory and fundamentals of basic antenna and satellite systems.

EEST 203 Magnetic and Laser Media 3
This course is an introduction to the theory and fundamentals of basic magnetic and laser median including magnetic tape players and CD players.

EEST 204 RF Receivers and Audio Amps 4
This course is an introduction to the theory and fundamentals of basic RF receivers and audio amplifiers including synthetic and conventional receivers, audio amplifier circuits, conventional tube type, transistor, and FET circuits.

EEST 205 Video Projection 1
This course is an introduction to the theory and fundamentals of basic video projection and Raster Scan.

EEST 206 Emerging Technologies 3
Students learn about such current technologies as RFID, laser technology, IT applications in the medical field, security systems, and smart home technology. Course content may vary depending upon technological advances.

EEST 291 Practical Applications 1-18
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.

EEST 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

EEST 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

EEST 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

EEST 296 Work-based Learning Experience 1-18
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.

EEST 297 Work-based Learning Seminar 1-2
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.

EEST 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

ELECTRONICS TECHNICIAN

ETECH 101 Introduction to Electronics 2
This course is an overview of electronics including terminology, general safety, and applied math principles specific to the industry.

ETECH 102 DC Circuits 5
This course is an introduction to the theory and practical applications of DC circuits including resistors and resistive circuits, series and parallel circuits, meter movements, ammeters, voltmeters, VOMs, DMMs and Wheatstone Bridges.

ETECH 103 AC Circuits 5
This course is an introduction to the theory and applications of AC circuits, capacitors, coils, transformers, oscilloscopes, signal generators, and component checkers. Prerequisite: ELECT 111, 112, 113 or department chair approval.

ETECH 104 Analog Circuits 5
This course is an introduction to analog circuits. Topics include devices, diodes, transistors, power supplies, simple amplifiers, operational amplifiers, and thyristors. Voltage and current mode techniques are also introduced.

ETECH 105 Digital Circuits 5
This course is an introduction to the basic concepts of numbering systems and digital devices such as gates, counters and flip-flops. Microprocessors, memory circuits, and microprocessor applications are also included.

ETECH 106 Microcontrollers 5
The course is an introduction to the fundamentals of microcontroller-based systems, including applications, architecture, number systems, and languages.

ETECH 107 Employment Preparation 3
This course is an introduction to communication concepts that emphasize resume writing and the development of job search skills.

ETECH 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

FACILITIES MAINTENANCE ENGINEER

CREDITS

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. Individual workplace and tool safety are emphasized.

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.

FACM 103 Electrical Service 4
Students learn to troubleshoot, test, maintain, and repair electrical services within a building. Electric motors, controls, PLCs, and test equipment are studied.

FACM 104 Introduction to Blueprint Reading 5
Students learn to read, interpret, and create graphic drawings including building and machine blueprints, technical sketching, and working drawings. Trade math is also studied.

FACM 105 Engineering Drawings 4
A continuation of the concepts introduced in FACM 104, students learn to create commercial plans: plot, floor, elevation, sections, and plan details.

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.

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.

FACM 108 Mechanical and Machine Maintenance 5
Students learn the 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.

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.

CREDITS

FACM 110 Introduction to Building Maintenance 3
Students are introduced to the basic maintenance and repair methods used in the building maintenance profession.

FACM 111 Building Maintenance and Repair Methods 5
The maintenance, repair, and minor remodeling techniques to 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.

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.

FACM 121 Grounds Keeping 5
Students learn to select and use proper equipment for maintaining turf, shrubs, and plants. Irrigation system design, installation and repair, basic asphalt and concrete maintenance are studied.

FACM 123 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.

FACM 140 Boiler Operations and Certification 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.

FACM 142 Advanced Industry Application 10
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 permission is required before enrolling in this course.

FACM 144 Advanced Boiler Operations 5
Students learn 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.

CREDITS

FACM 220 Introduction to Remodeling 4
Students learn 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.

FACM 221 Small Business Planning 3
Students learn 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.

FACM 230 Computers in Industry 2
Students are introduced to the use of computers in maintenance management with the use of basic computer programs.

FACM 231 Computer Applications 4
Students learnt to 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 learn to use common computer applications to communicate, build, and share maintenance-related coursework.

FACM 291 Practical Applications 1-18
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, be industry / program related, and should result in the achievement of advanced learning in the subject area chosen. Instructor permission is required before enrolling in this course. This coursework should directly apply concepts learned in a particular training area.

FACM 292 Independent Projects 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 should be based on prior course work, be industry / program related, and should result in the achievement of advanced learning in the subject area chosen. Instructor permission is required before enrolling in this course.

FACM 293 Independent Projects 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 should be based on prior course work, be industry / program related and should result in the achievement of advanced learning in the subject area chosen. Instructor permission is required before enrolling in this course.

CREDITS

FACM 294 Independent Projects 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 should be based on prior course work, be industry / program related and should result in the achievement of advanced learning in the subject area chosen. Instructor permission is required before enrolling in this course.

FACM 296 Work-based Learning Experience 1-18
Work-based learning (WBL) allows students to participate in on-the-job training in the field in which they are training. They apply the skills they have learned in the classroom, lab, and coursework 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 permission is required before enrolling in this course.

FACM 297 Work-based Learning Seminar 1-2
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 before and during the WBL experience. Instructor permission is required before enrolling in this course.

FACM 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area. Instructor permission is required before enrolling in this course.

FIRE PROTECTION ENGINEERING TECHNOLOGY

CREDITS

FPET 101 Introduction to Fire Protection Engineering 3
This course is an introduction to the fire protection engineering industry and its role in the protection of building. Policies and requirements of the Bates' program is also presented.

FPET 102 Building Construction 5
This course is an introduction to the building design principles and how the application of fire protection systems and methods are used to protect individual buildings. Students learn the various parts of buildings and how those are graphically depicted and verbally described on construction documents.

FPET 103 Research Methods 5
Students explore various methods of accessing pertinent information relative to fire protection engineering technology including general and special library collections, Internet resources, and governmental holdings.

FPET 104 History of Fire Protection 1
This course presents a brief history of fire protection, early attempts at regulating behaviors, and using technological solutions to the fire problem, from ancient time to present day practices.

FPET 105 Occupational Safety 1
This course is an introduction to the hazards of personal safety associated with the fire protection industry.

FPET 106 Applied Math and Science 4
This course is an introduction to math and science and their application to the fire protection engineering technology industry including basic mechanics, applied plane and solid geometry, basic principles of college level physics, and the concepts of statics and dynamics.

FPET 107 Alarm and Suppression System Design I 5
This course is an introduction to the design of fire alarm and suppression systems.

FPET 108 Design Seminar 2
This course provides students with the opportunity to explore in depth some of the specific principles of design introduced in FPET 107 and 112.

FPET 109 Drafting Fundamentals I 4
Students learn to use basic computer-aided drafting (CAD) from the setup of the workspace to the printing of the finished product.

CREDITS

FPET 110 Codes and Standards 5
Students learn what codes and standards are applicable to buildings with emphasis on particular model codes and standards adopted as the building and fire codes of Washington State applicable to fire protection, including those developed by the International Codes Council (ICC) and the National Fire Protection Association (NFPA).

FPET 111 The Practice of Fire Protection 5
This course introduces students to certain business concepts such as contracts and certifications, and additionally includes job hunt and career advancement strategies.

FPET 112 Sprinkler Design I 5
Student learn the fundamentals of hydraulics, basic sprinkler system layout, and the principles of mathematically designing and calculating these systems

FPET 113 Drafting Fundamentals II 3
A continuation of the concepts introduced in FPET 109, students practice more intermediate aspects of computer- aided drafting (CAD). Prerequisite: FPET 109.

FPET 114 Introduction to Inspection and Testing 3
Students are introduced to the concept of the inspection and testing of emergency, stand-by fire protection equipment and why regularly scheduled inspections and tests are critical.

FPET 115 Calculation Seminar 2
This course is a continuation of the mathematical calculations for design as introduced in FPET 107 and112.

FPET 116 Drafting Fundamentals III 3
Students are introduced to universal drafting fundamentals that are applicable to both hand drafting and CAD and their application to architectural drawings: scaling, title blocks, legends, schedules, and line weights, etc. Sketching and the concept of the engineer's notebook are also explored. Prerequisite: FPET 113

FPET 117 Fire Protection Project/ Applications 3
Students are given the opportunity to explore any fire protection application of interest to the individual student. The instructor and the student will negotiate the parameters of the independent project.

CREDITS

FPET 200 Advanced Codes 3
This course provides a forum where advanced students can explore aspects of codes and standards in a small group, informal discussion format. The topics of discussion are chosen by the students, either from instructor suggestions or from their own interests.

FPET 201 Projects I 4
Course emphasis is on single-family residences. Students design sprinkler and smoke alarm systems in two single-family dwellings, duplexes, or townhouses to include street connections and a partial submittal package. Students specializing in sprinkler design are particularly encouraged to complete the entire four projects courses series and FPET 205.

FPET 202 Projects II 4
A continuation of the FPET 201, course emphasis is on other than single-family residential occupancies. Students design sprinkler and fire alarm systems for a multi-family dwelling and another residential occupancy such as a small hotel or dormitory building to include street connections and a partial submittal package.

FPET 203 Projects III 4
A continuation of FPET 201 and 202, course emphasis is on commercial and industrial occupancies. Students design sprinkler and fire alarm systems for two small commercial or industrial occupancies such as a restaurant, warehouse, and strip malls to include street connections and a full submittal package.

FPET 204 Projects IV 4
A continuation of FPET 201, 202, and 203, students design a sprinkler, a standpipe, and a fire alarm system for a mixed-use occupancy. The mixed use includes a parking garage, a mercantile floor, at least one level of business occupancy, and at least two residential floors.

FPET 205 Practical Applications I - Design 4
Students explore individual design topics in depth with topics relating to special considerations of overall design.

FPET 206 Practical Applications II – Commissioning and Inspections 3
Students explore specific topics relating to commissioning and inspections individual design topics in depth with topics relating to special considerations of overall design. Typical topics may include NFPA 3 and the process of building commissioning or the limits and responsibilities of the inspector under an NFPA 25 contract.

CREDITS

FPET 207 Practical Applications III – Water Supplies 4
In this small group seminar style course students will take a detailed look at water supplies. Students will present an oral or written report/presentation on their conclusions. Topics and conclusions may be addressed individually or by students in groups.

FPET 208 Practical Applications IV – Risk Management 3
In this small group seminar style course students will explore general topics of risk management. Typical topics might include cost/benefit analysis, approaches to risk, cost and diminishing returns, the role of actuaries, etc. Students will participate in determining the topic(s) to be explored and will present an oral or written report/presentation on their conclusions. Topics and conclusions may be addressed individually or by students in groups.

FPET 210 Notification Integration 1
Fire suppression, fire resistance (compartmentalization), and fire detection and notification is all important in an overall fire protection strategy. This course will focus on the integration of those systems and how they work together to provide a full strategy of property protection and life safety.

FPET 211 Applied Chemistry and Physics 2
This course is an introduction to fundamentals of chemistry and physics as they apply to the fire protection industry.

FPET 212 Sprinkler Equipment and Systems 3
Students explore in detail the actual equipment and systems used in basic fire protection: wet and dry sprinkler risers and systems; fire pumps; basic alarms utilizing smoke and heat detectors for initiation; and horns and strobes for notification.

FPET 214 Special Systems and Equipment 3
This course investigate the more specialized actual systems and equipment applications found in water-based fire control and suppression such as pre-action and deluge systems, special application sprinklers, and the various types of standpipes.

FPET 216 Special Hazards Systems 4
This course covers other suppression systems and strategies that are neither sprinklers nor water-based.

FPET 217 Notification Appliance and Monitoring Applications 2
This course explores the equipment and methodologies used to notify and evacuate when danger is present.

CREDITS

FPET 218 Detection Systems 3
This course explores the equipment and methodologies used to detect and determine that a danger exists.

FPET 291 Practical Applications 1-18
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.

FPET 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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FPET 296 Work-based Learning Experience 1-18
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FPET 297 Work-based Learning Seminar 1-2
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.

FPET 298 Work-based Learning – No Seminar 1-18
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FIRE SERVICE

CREDITS

FIRES 101 Orientation to Fire Service 2
This course is an introduction to the history, evolution, organization , and traditions 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 today's firefighter.

FIRES 103 Fire Service Applications I 5
Students apply the theory presented in lecture/lab and demonstrate performance standards.

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.

FIRES 105 Introduction to Fire Science 3
This course introduces students to the science of fire: the exothermic oxidation of a combustible substance. Additional topics include fire behavior and suppression methods and how ventilation affects the growth of fire.

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 learn to identify key components of municipal and rural water supply systems.

FIRES 107 Fire Service Applications II 5
Students apply the theory presented in lecture/lab and demonstrate performance standards.

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.

FIRES 109 Ladders 5
This course covers the various types of portable and mounted ladders used in the fire service. Students learn the uses of ladders on the fire scene, various methods for placement, and maintenance of ladders while suppression operations are in progress.

FIRES 110 Intermediate Fire Service 2
During this course, students learn about the different types of extinguishers available for extinguishment of different classes of fires. The operation of the tools and equipment necessary to perform salvage and overhaul operations successfully on the fire ground is also presented. Additionally, students are exposed to basic fundamentals of fire investigations.

CREDITS

FIRES 111 Fire Service Applications III 4
Students apply the theory presented in lecture/lab and demonstrate performance standards.

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.

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.

FIRES 122 Fire Vehicle Operations 4
This course provides the skills required by the Washington State Fire Protection Policy Board pertaining to the safe operation of emergency vehicles. The proper operation/maintenance of fire pumps, the roles and responsibilities of the driver/operator, and the theory and principles behind water flow and calculations are included.

FIRES 123 Fire Service Applications IV 5
Students apply the theory presented in lecture/lab and demonstrate performance standards.

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.

FIRES 201 Rescue Procedures 3
Students learn the techniques used to rescue civilians and fire service personnel in various rescue situations: vehicle extrication, trench rescue, confined space rescues, and high-angle rescues.

FIRES 202 Advanced Fire Service 3
This course emphasizes the dangers of building construction to the firefighter and ways to prevent injury and death including the use of protective systems, detection systems, and suppression systems and proper understanding of these systems, how they operate, and how to use them correctly.

FIRES 203 Fire Service Applications V 5
Students apply the theory presented in lecture/lab and demonstrate performance standards.

CREDITS

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

FIRES 205 Hazardous Materials 3
This course emphasizes the knowledge required to operate at NFPA 472 entry-level standards for the first responders to hazardous materials incidents. Student also learn operations techniques as described in national standards for responders to hazardous materials incidents.

FIRES 206 Employment Preparation 2
Students are introduced to emergency service professionals' career ladder structures. They also learn a variety of job search skills necessary to gain employment in the fire service.

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 is also included.

FIRES 208 Fire Service Applications VI 4
Students apply the theory presented in lecture/lab and demonstrate performance standards.

FIRES 209 Healthcare Provider 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.

FIRES 210 Confined Space Rescue 1
Students are introduced to confined space rescue standards as determined by the National Fire Protection Association (awareness level).

FIRES 211 Advanced Firefighter 3
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.

FIRES 220 Fire Service Applications VII 4
Students apply the theory presented in lecture/lab and demonstrate performance standards.

CREDITS

FIRES 221 Experiential Lab/Drill 4
During this advanced phase of training, students are assigned to, and drill with, organized emergency services organizations. This may include a variety of organized units such as fire engine companies, hazardous-mat operations companies, crash/slash/fire rescue companies, an advanced life support company, or a confined space rescue company.

FIRES 225 Emergency Medical Technician (EMT) 8
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.

FIRES 240 Fire Instructor 3
This course is an introduction to a fire instructor's duties as written by the requirements of the National Fire Protection Agency (NFPA) 1041, Standard for Fire Service Instructor Qualifications. Students examine a basic study of elements that influence teaching and learning. Special attention is given to the Fire Service Training Instructor's relationship to student safety as well as the legal liabilities involved. Instr5uction will include discussion of techniques for preparing effective lessons using the psychology of learning. Other topics include: training aids, copyright law, learning theories, purposes and principles of testing and evaluation.

FIRES 241 Fire Safety Office 2
This course is an introduction to the duties as written by the requirements of the National Fire Protection Administration (NFPA) 1521, Standard for Fire Department Safety Officer, 2002 Edition. Course elements are designed to identify and analyze health and safety aspects relating to their role as Incident Safety Officer in both emergency and non-emergency situations.

FIRES 242 Fire Officer I 5
This course is an introduction to a fire officer's duties as written by the requirements of the National Fire Protection Agency (NFPA) 1021, Standard for Fire Officer Professional Qualifications. Content includes leadership, supervisory and decision making practices, legal responsibilities, communication practices, report writing, workplace safety, quality assurance and pre-incident planning.

FIRES 243 Fire Service II 5
This course is the second level of standards-based certification available to firefighters. Course materials provide additional information on topics included in the Firefighter I program, and allows the firefighter to participate in certification testing to obtain Firefighter II certification based on NFPA 1001, 2008 edition.

CREDITS

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FIRES 292 Independent Projects 1-5
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FIRES 296 Work-based Learning Experience 1-18
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FIRES 298 Work-based Learning – No Seminar 1-18
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CREDITS

HEARING INSTRUMENT TECHNOLOGY

CREDITS

HEAR 110 Introduction to Hearing Professions 5
This course focuses on the role of professionals dealing with hearing healthcare and the role of the hearing aid specialist within the healthcare model. Students investigate the different work settings and delivery models that are available in their desired work community.

HEAR 111 Safety Practices 4
This course introduces universal and personal safety hygiene in the hearing clinic as well as state required 4 hours of AIDS/HIV training and blood borne pathogens.

HEAR 112 Acoustics 5
Students learn the basics of sound production and sound amplification as it applies to human hearing and the manipulation of sound to improve hearing.

HEAR 113 Hearing Assessment I 3
Students identify key components of patient centered case history and practice in the classroom setting. Basics of otoscopy and standard pure tone testing are demonstrated and practiced in the classroom setting.

HEAR 120 Anatomy and Physiology 5
Normal anatomy and physiology of the human ear and related structures are discussed as it pertains to hearing.

HEAR 121 Instrumentation 5
This course is designed to introduce the student to the different equipment that is used in the industry and state requirements for maintenance and calibration.

HEAR 122 Hearing Assessment II 3
Continuation of Hearing Assessment I, the student practices obtaining case histories, performs otoscopy and standard pure tone audiometry in the classroom setting. Speech audiometry and special testing are introduced.

HEAR 130 Disorders of the Auditory System 5
Common medical pathologies that affect the ear and hearing are described and discussed with emphasis on otologic conditions and audiometric test results that require medical referral by state and federal law.

HEAR 131 Hearing Aids I 5
The history of hearing aids and the development of technology and hearing aid components are discussed. Students learn how different hearing aid technologies can affect patient outcomes. Techniques for making impressions for custom ear molds and hearing aid shells are introduced and practiced in the classroom.

CREDITS

HEAR 132 Audiometric Interpretation I 5
Students practice how to read, record, and explain results of audiometric testing in both professional and lay language. The emphasis is on degree, nature and configuration of hearing thresholds as they appear on the audiogram. The Initial process of patient specific recommendations to solve communication difficulties are introduced in this course.

HEAR 210 Hearing Assessment III 3
A continuation of the concepts introduced in Hearing Assessment II, this course is a comprehensive analysis of the decision making process used to choose appropriate test protocols.

HEAR 211 Aural Rehabilitation I 3
This course introduces the concepts of hearing impairment, hearing handicap, and hearing disability. Individual variables such as co-existing medical conditions, psychological adjustment, cultural values, socio-economic status, and disability are presented.

HEAR 212 Business Aspects I 5
This course introduces the different methods of hearing aid distribution, from the holding companies, vendors, retail and private dispensing offices. Students will be exposed to different sales philosophies and the ever changing industry.

HEAR 213 Clinical I 3
In this course the student will shadow professionals in the field, in the Bates Hearing Clinic, and will begin to interact with patients under direct supervision of the instructor. Activities will depend upon the patient and student needs.

HEAR 220 Hearing Aid Evaluation 5
In this course the student will practice all test procedures needed to recommend, select and dispense a hearing aid. At minimum variables such as patient communication style, hearing loss, degree of perceived handicap, motivation and patient expectations will be considered.

HEAR 221 Audiometric Interpretation II 5
In this course the student will begin to analyze consistency of test results for validity. A variety of counseling and assessment tools to educate and the potential hearing aid patient/family/friends will be introduced and practiced in the lab.

HEAR 222 Hearing Aids II 5
A continuation of Hearing Aids I, this course focuses on the electro-acoustic testing of hearing aids, basic programming of hearing aids along with validation and verification techniques to ensure optimal hearing aid fit for patient.

CREDITS

HEAR 223 Clinical II 3
All testing performed In Clinical I are continued with the addition of speech audiometry, tympanometry, and impressions.

HEAR 230 Hearing Aid Service and Repair 5
This course concentrates on the maintenance of a functioning hearing aid as well as troubleshooting a non-functioning or distorted hearing aid Minor office repairs are demonstrated and practiced both in the classroom setting and in the clinical setting.

HEAR 231 Aural Rehabilitation II 4
This class focuses on different verification strategies and counseling tools for the hearing aid user. Topics such as current trends, Deaf Culture, cochlear implants, and assistive listening devices are investigated.

HEAR 232 Business Aspects II 4
Current industry trends are identified and discussed in this course. The student has the opportunity to create a business plan or produce a professional resume. Washington state laws, federal laws and ethics will be a topic for discussion.

HEAR 233 Clinical III 4
Clinical III is a continuation of Clinical II. All skills are applied in a full service hearing aid clinic with direct or indirect supervision.

HEAR 291 Practical Applications 1-18
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.

HEAR 292 Independent Projects 1-5
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HEAR 297 Work-based Learning Seminar 1-2
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.

HEAR 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

HEATING, VENTILATION, AIR CONDITIONING, REFRIGERATION TECHNICIAN

HVAC 101 HVAC/R Fundamentals 3
This course is an introduction to the HVAC industry. It will introduce the student to HVAC history, environmental heating and cooling, food preservation, industry opportunities, professional organizations, useful publications, available certifications and what is required of an employee.

HVAC 102 Safety 2
OSHA and WISHA procedures and regulations are presented. Students complete the Washing ton State Industrial First Aid / CPR program. The use of personal protection equipment, and safe work practices.

HVAC 103 HVAC/R Science 2
This course will cover the importance of the properties of matter, laws of conservation of energy, common forms of energy, energy conversion and electrical distribution. Temperature measurement and conversion, thermodynamics, pressures and vacuums.

HVAC 104 HVAC/R Tools and Equipment 4
Students learn the proper use of hand tools, fasteners, electrical, refrigeration and heating test instrument and servicing equipment.

HVAC 105 Refrigerant and Refrigeration Systems Sections A 4
Students learn refrigeration system components and operation, refrigeration cycle, compressors, condenser, metering devices and evaporators.

HVAC 106 Refrigerant and Refrigeration Systems Sections B 3
A continuation of the concepts introduced in HVAC 105, students learn refrigerant properties, system piping, accessing sealed systems, refrigerant management, system evacuation and charging.

HVAC 107 HVAC/R Electrical Systems and Components 5
Students learn basic electricity, power, circuits, electric motors, electrical components, diagrams and controls.

HVAC 108 Soldering and Brazing Applications 3
Students learn techniques of heat bonding copper tubing and dissimilar materials using soft solder and brazing alloys common to the HVAC industry.

HVAC 109 Basic HVAC/R Math Applications 3
This course is an introduction to the basic mathematic calculation used in the HVAC/R industry.

CREDITS

HVAC 110 Residential HVAC/R Systems 5
This course is an introduction to unitary systems, split systems, and the arrangement, placement, and matching of equipment. Students learn to troubleshoot residential cooling and heating equipment.

HVAC 111 Light Commercial HVAC Systems 5
A continuation of the concepts introduced in HVAC 110, students learn about unitary and split air conditioning and heating equipment used in light commercial applications. Oil heating equipment is also presented.

HVAC 112 Heat Pump Systems 4
A continuation of the concepts introduced in HVAC 110 and HVAC 111. This course is an introduction electric heating equipment, heat pump components, applications and troubleshooting.

HVAC 201 HVAC/R System Design, Sizing, and Layout 4
Students are introduced to basic building construction, fans, airflow, duct design, installation, zone controls, test and balancing air systems, psychrometrics, indoor air quality, filters, humidifiers, and residential load calculations.

HVAC 202 Welding Processes (SMAW/GMAW) 2
This course is an introduction to basic oxyacetylene welding including flat and vertical bead on plate. A general overview of terminology and general safety is also include.

HVAC 203 Hand Held Torch 2
Basic oxyacetylene cutting and burning is presented.

HVAC 204 SMAW (ARC) Applications 2
Basic arc welding in the horizontal, vertical, and overhead positions is presented.

HVAC 205 GMAW (MIG) Applications 2
Basic steel and aluminum MIG welding in the horizontal, vertical and overhead positions are presented.

HVAC 206 Basic Metalworking 2
Students learn to identify the components, equipment, and operation for sheet metal layout and fabrication.

HVAC 207 Basic Layout and Patterns 2
A continuation of the concepts introduced in HVAC 213, students fabricate patterns and join them in a line of fittings.

HVAC 208 Fabrication Practices 2
Students learn the procedures used in the installation of a complete residential central heating, ventilation, and air conditioners.

CREDITS

HVAC 209 Air Balance and 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.

HVAC 210 Drafting/Blueprint Reading 4
Students learn basics of preparing plans and orthographic and isometric drawings used to create building blueprints. The identification and application of plumbing, electrical, air conditioning, and refrigeration symbols found on mechanical drawings is emphasized.

HVAC 211 Commercial Environmental Systems 5
This course provide the students with the knowledge commercial air conditioning systems, air handlers, accessories, package units, and controls

HVAC 212 Chilled Water Systems 2
This course is an introduction to types of chilled water units, purge recovery, compressor arrangement, chiller economizers, oil return systems, and absorption chiller operation.

HVAC 213 Hydronic Heating Systems 2
Students learn the uses of common terminal units, types of piping, configuration of multiple systems, motorized controls valves, radiant heating, mixing valves, and the circulators used.

HVAC 214 Cooling Towers Basics 1
Students learn the basics types of cooling towers and cooling tower operation and maintenance.

HVAC 215 Introduction to Thermal Storage 2
Students are introduced to the theory of thermal storage including mode of operation.

HVAC 216 EPA Section 608 Exam 1
This course is a precursor to taking the EPA Section 608 exam. Employee must be certified by the EPA to handle refrigerant under penalty of law. Three types of exams are available: Type I, Type II, and Type III. All three types require that a core exam also be passed. The minimum requirement for HVAC/R technicians is a Type II.

HVAC 217 Commercial Refrigeration 3
Students learn to identify high temperature, medium temperature and low temperature refrigeration systems, food preservation, various type of systems used, and basic principles of operation.

CREDITS

HVAC 218 Installation, Maintenance, and Troubleshooting 2
This course is an introduction to installation standards, equipment placement, piping procedures, determining the correct charge, planned maintenance, and trouble-shooting procedures.

HVAC 219 AHRI Industry Competency Exam #1 (ICE) 2
This course is a precursor to taking industry recognized national AHRI Industry Competency Exam (ICE Exam). The three test areas include: Residential Heating and AC, Light Commercial Heating and AC, and Commercial Refrigeration. Completion of one exam of the three exams is required for Support Technician credential and AT Degree.

HVAC 220 AHRI Industry Competency Exam #2 (ICE) 2
This course is a precursor to taking industry recognized national AHRI Industry Competency Exam (ICE Exam). The three test areas include: Residential Heating and AC, Light Commercial Heating and AC, and Commercial Refrigeration. Completion of an additional exam is required for AT Degree.

HVAC 221 HVAC/R Industry Math 5
This course is an introduction to the math calculations common to the industry, including algebraic formulas; calculation of angles, areas, and volumes of various geometric shapes; and system load calculations.

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CREDITS

CREDITS

INDUSTRIAL ELECTRONICS AND ROBOTICS TECHNICIAN

IERT 101 Introductory Industrial Robotics 5
This course provides an overview of industrial robots, their role in process automation, programming methods, and the technologies robots depend on to perform their functions. Other key elements of this course are end-of-arm tooling, electromechanical systems, fluid power systems, system interfacing, robot vision, and preventative maintenance.

IERT 102 Applied Geometry 5
Applied Geometry is a college-level course intended to meet the requirements of the aerospace and robotics industries for technicians and programmers. This course focuses of the foundational axioms of geometry as they apply to lines, curves, surfaces, and shapes from both two-dimensional and three-dimensional perspectives.

IERT 104 Basic Blueprint Reading 3
This course allows students to achieve competence in reading and sketching technical drawings of parts and assemblies. The basic concept of ANSI and SI metric drafting symbols and standards, terminology, manufacturing process notes, and other technical materials contained in mechanical or CAD drawings are covered extensively.

IERT 106 Numerical Control Familiarization 3
This course focuses on the concepts and programming of CNC milling and turning machines, but the programming principles may also be applied to many robotics control systems. Coverage of operator panels, symbols, tools, programming codes, and parameters fill-in the gaps between CNC programming and actual operation in a production environment.

IERT 108 Basic Precision Measuring Tools 1
Precision manufacturing ultimately relies on the calibrated accuracy of measuring tools, equipment, and systems. This course examines the use of precision mechanical measuring devices, such as micrometers, calipers, height gauges, dial indicators, gauge blocks and sources of measurement error. Optical and laser devices are also explored.

IERT 110 Electricity and Magnetism 2
Between the years 1600 and 1800, mankind's knowledge of electricity was limited to observations of electrostatic and magnetic phenomena. This course follows those observations through the development of modern electrical theory and how a better understanding of that theory is being used to create intelligent and efficient energy delivery systems.

CREDITS

IERT 115 DC Circuit Analysis 5
This course introduces electrical units of measure and how those units are interrelated. It also explores the five basic types of electrical circuits and the rules used to solve for electrical quantities throughout those circuits. All electrical devices and systems are built on a thorough understanding of these circuits.

IERT 118 Fluid Power 5
Fluid power covers both pneumatics and hydraulics, and fluid power circuits have many characteristics in common with electric circuits. This course introduces fluid power devices, circuits, and units of measure using a combination of interactive computer graphics and real world systems.

IERT 120 Alternating Current 2
Alternating current (AC) forms the basis of electric power transmission and distribution throughout the world. Using computer graphics and active systems, this course explores the generation of single-phase AC and the specialized components that make it all possible.

IERT 125 AC Circuit Analysis 5
Like DC, AC can be applied to five different types of circuits. AC circuits involve a broader range of components than DC circuits and require a more in-depth mathematical analysis to understand. This course visually and mathematically explores how constantly changing electrical values interact with each other over time.

IERT 126 Analog Electronics 5
Analog electronics explores electronic devices and circuits that work with continuously variable physical quantities. This includes semiconductor materials, sensors, transducers, diodes, transistors, thyristors, Op-amps and other linear integrated circuits. Circuits include power supplies, regulators, DC-to-DC converters, amplifiers, oscillators, signal conditioners, phase-locked loops, modulators and mixers.

IERT 128 Polyphase AC Power Generation & Distribution 5
Virtually all of the world's electrical power generation comes from three-phase generators. Having voltages and currents displaced in time requires a more complex circuit analysis than single-phase involving vectors. This course explores polyphase generators, transformers, and power distribution systems using mathematical and graphical analysis, along with specialized test equipment.

IERT 135 Mechanics 3
Mechanical systems are an integral part of automation, where materials must be moved as part of the manufacturing process. The physics of classical mechanics are explored in this course along with units of measure and simple machines. A mixture of computer animations and practical experiments bring this subject to life.

CREDITS

IERT 140 Motors and Control Systems 5
Motors are the backbone of material handling systems. This course examines the operating principles of common DC and AC motors, how they are wired into electrical systems, and common electromechanical control circuits. It then moves on to more sophisticated electronic control using smart motor controllers and VFDs (variable frequency drives).

IERT 145 Construction Practices and Print Reading 5
Control panels and systems are built to standards established by the NEC (National Electrical Code) and UL (Underwriters Laboratories). This course explores the techniques of good panel building for control systems ranging from simple electromechanical motor starters to advanced control using PLCs (Programmable Logic Controllers).

IERT 212 Digital Electronics 5
This course is designed for students seeking employment as electronics technicians. It covers hardware design aspects not addressed in IERT 210 and it is a more comprehensive substitute for that requirement. Digital integrated circuits, from basic logic families through FPGAs, are explored through hardware and VHDL software design and implementation.

IERT 215 Programmable Logic Controllers (PLCs) 5
Programmable logic controllers are industrial computers designed to replace hard-wired circuits used in past years. This course focuses on Allen Bradley's popular SLC 500 and MicroLogix controllers using LogixPro and RSLogix 500 software. A smooth transition from ladder diagrams to ladder logic establishes the basis for more sophisticated programming models.

IERT 220 Allen Bradley SLC 500 Processors 5
This course focuses on the Allen Bradley's SLC 500 processor family using RSLinx, RSLogix 500, and FactoryTalk software. The venerable SLC 500 family is explored by examining the complete instruction set and hardware interfaces. Students learn to install and configure the software tools necessary for communication, licensing, and programming.

IERT 225 Sensors and Transducers 3
Process variables, like temperature, pressure, flow, depth, rotational speed, and object detection depend on sensors and transducers to provide information to the control system. This course explores the operating principles of these devices and how they are implemented in practical control systems.

CREDITS

IERT 230 Programming Methodologies 2
Programming is a structured science that requires discipline and planning. This course introduces Statement Lists, Flowcharting, Finite State Machines, and Venn diagrams as methods of developing efficient, effective programs in a timely manner. Once the program flow is determined, it is translated to the appropriate development software.

IERT 231 PLC Programming Projects 5
The RSLogix 500 simulator used in class, LogixPro, comes with seven real world interactive programming projects: Door Simulator, Silo Simulator, Traffic Simulator, Batch Simulator, Dual Compressor Simulator, Bottle Line Simulator, and Elevator Simulator. In addition, multiple labs using RSLogix and RSLinx from Rockwell Automation finalize the programming projects.

IERT 238 Embedded Controllers 5
Microcontrollers embedded in dedicated systems number in the billions. This course focuses on the two main architectures in use today: Harvard and von Neumann. Development boards from Microchip and Freescale Semiconductor provide opportunities to explore brushless DC motor control, touch sensing, LCD displays, Digital Signal Processing, wireless data, and robotics.

IERT 240 Industrial Robots 5
This course centers on a FANUC Robotics 200iC industrial robot and covers safety, moving the robot in 3D space, collision detection, Teach Pendant Programming (TPP), and end-of-arm tooling. Students gain an understanding of the controller's internal data and file structures. Concurrent Enrollment: IERT 241

IERT 241 FANUC Robotics Roboguide 3
Roboguide is a program development environment for FANUC robots that consists of a virtual 3D world where robot operations are simulated via the user program using avatars. Other 3D objects can be added for the robot to interact with. Concurrent Enrollment: IERT 240

IERT 250 Independent Study 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.

IERT 251 Independent Study 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.

IERT 254 Supervisory Control & Data Acquisition (SCADA) 5
SCADA is a technology that is used to monitor and control large processes, such as power generation, that may cover thousands of square miles. This course presents the nomenclature and architecture, the system's building blocks, wireless communications between sensors and control, monitoring software, and data base development.

IERT 255 Instrumentation 5
Process control requires the precise monitoring of process variables. This course examines the measurement and control of temperature, liquid level, flow rate, pressure, pH, and weight. Process control diagrams, equipment maintenance, smart instrument calibration, documentation, and loop tuning with PID control are offered using equipment from major manufactures.

IERT 256 Alternative Energy 5
Alternative energy is a rapidly expanding field where modern innovation has allowed older technologies to evolve at an exponential rate. This course explores electric power generation using wind power, solar power, and fuel cells. Embedded control of servo mechanism, inverters, buck-boost regulators, and power management are all key components.

IERT 257 AutoCAD Electrical 5
AutoCad Electrical is CAD software developed specifically for Industrial Controls. As part of the Autodesk community, this course gives EPPA students an opportunity to work with a first-rate design program while learning to adhere to standards developed by UL, NFPA (NEC), and the IEC.

IERT 258 Automation Studio 5
Automation Studio is a powerful software package from Famic Technologies used to design and test Allen Bradley RSLogix 500 programs with electrical, pneumatic, and hydraulic circuits. The resulting animations visually mimic the actions of the circuits they represent and can be used with confidence to understand equipment operation.

IERT 259 Microsoft's Robotics Studio 5
Robotics Studio is an integrated development environment for creating robotics control programs and 3D simulations. Novice developers start programming with VPL (Visual Programming Language) and then advance to higher level languages using Visual Studio. An exciting mixture of gamming and industrial technologies, this product serves hobbyist, scientist, and industrial professionals.

IERT 260 Programming in Alice 5
NXT Robots sport a powerful 32-bit microcontroller. Entry-level users develop programs for their mechanical creations using an object oriented development environment from LabView. This course employs a variety of challenging robotic designs. Fully supported by Microsoft's Robotics Studio, NXT robots can also be programmed in C or assembly.

IERT 261 Embedded Programming in C 5
This course centers on programming Microchip's DSPs and high-end microcontrollers using MPLAB C. Projects cover Brushless DC motor control, Mechatronics, Touch Sensing, Speech Processing, Interactive Process Simulations, and Video Simulations. Completion of IERT 230 and IERT 238 is highly recommended as a prerequisite for this course.

IERT 262 Wireless Sensor Networks 5
Wireless sensors are becoming increasingly popular in industrial networks; smart buildings, security, access control, inventory control, RFID, SCADA, and robotics. This course explores various data formats and topologies employing ZigBee and other data protocols to create reliable and secure wireless networks that move data from a variety of sensors.

IERT 268 Industrial Networks 5
Industrial process control requires that equipment be located over large areas. The controlling equipment needs to communicate with sensors and distributed control racks. This is accomplished using industrial data networks, such as Modbus, Device Net, ControlNet, ProfiBus, Fieldbus, and Industrial Ethernet. ZigBee wireless and short distance protocols are also covered.

CREDITS

INFORMATION TECHNOLOGY SPECIALIST

INFO 101 Computer Applications Essentials 5
This course is an introduction to the effective use of the computer at home or on the job including such topics as an introduction to application software for document processing, presentation graphics, electronic spreadsheet, and database management software using Microsoft Office.

INFO 102 Fundamentals of Information Technology 4
This course provides an introduction of Information Systems principles to help students understand the relationship of advanced courses to the curriculum as a whole and to present the changing role of the information systems professional.

INFO 103 Internet Applications 5
This course is a combination of three popular internet applications: e-mail, XHTML, and web authoring. Topics also include web search skills, Mash up, social networking , and online multimedia.

INFO 104 A+ Essentials 4
In this course, students acquire the essential skills and information needed to install, upgrade, repair, configure, troubleshoot, optimize, and perform preventative maintenance of basic personal computer hardware and operating systems. This course also prepares students for current A+ Essentials certification.

INFO 105 A+ Practical 4
Students learn to support PC hardware in a business setting, including installation, troubleshooting, component replacement, networking, and security. They also learn to manage the Windows operating system and are prepared for current A+ Essentials certification.

INFO 106 Electronics Basics 5
This course introduces the student to the fundamentals of electricity and electronics required to understand computer and network operations. Topics include AC theory, DC theory, electronic circuits, and other related fundamentals.

INFO 107 Structured Cabling 3
This course introduces students to standardized cabling practices and skills needed to install standards-compliant, scalable networks.

INFO 108 Project Management 5
This course is designed to introduce students to project management concepts and terminology. Students gain skills within a hands-on environment using project management software.

CREDITS

INFO 109 Employment Preparation 5
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

INFO 110 Emerging Technologies 5
Discover and explore emerging technologies used in today's computing environments. Students learn about these technologies and how these trends will impact computing and society.

INFO 111 Practical Applications 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.

INFO 291 Practical Applications 1-18
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.

INFO 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

INFO 293 Independent Projects 1-5
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INFO 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

INFO 296 Work-based Learning Experience 1-18
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.

CREDITS

INFO 297 Work-based Learning Seminar 1-2
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.

INFO 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

MACHINIST

MACH 111 Machine Shop Mathematics I 2
This self paced course is an introduction to math concepts to solve problems common to the machining/manufacturing industry.

MACH 112 Industrial Safety I 3
This course is an introduction to the occupational safety practices common to the machining/manufacturing industry. Emphasis is placed on the application of OSHA and WISHA standards within the lab setting.

MACH 114 Lathe Operations I 4
Students learn to set up and run conventional lathes for facing and turning operations and to perform basic machining skills.

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.

MACH 117 Measurement Applications 5
Students use precision measuring tools such as micrometers, height gages, calipers, gage blocks, and indicators.

MACH 118 Geometric Dimensioning and Tolerancing 5
This course is an introduction to the symbolic language used on engineering drawings.

MACH 119 Blueprint Reading 5
This course provides the student with the knowledge and skills to apply advanced dimensioning, tolerancing, practices, and multiple views.

MACH 120 Machine Shop Mathematics II 5
A continuation of the concepts introduced in MACH 111, students learn elementary , geometry, and trigonometry as they apply to the machine shop.

MACH 121 Lathe Operations II 4
A continuation of the concepts introduced in MACH 114, students learn more advanced turning skills using taper attachment, single point threading, knurling, boring head, bandsaw blade welding and drill grinding.

MACH 122 Grinding I 2
Students learn to set up and use a surface grinder.

MACH 123 Machining I 2
This course is an introduction to basic machining tools and processes including mechanical forces and metal removal.

MACH 124 Milling I 2
Students learn conventional milling machine techniques

CREDITS

MACH 131 Industrial Safety II 2
Students learn common occupational safety practices within the lab setting.

MACH 133 Milling II 3
Students are introduced to basic metallurgy, including physical and mechanical properties of metal.

MACH 134 Advanced Machining 4
Students learn complex lathe operations.

MACH 142 Advanced Machine Shop Applications 8
Students plan and produce an advanced project of their own design with the permission of the instructor. This course may only be used as a substitution for WBAS 101for students with documented health issues.

MACH 213 Advanced Machining III 5
Student learns to machine and assemble complex components.

MACH 222 CNC Lathe II 1
Students learn advanced practices using the CNC lathe.

MACH 224 MasterCam/Solid Works 5
Students learn CAD/CAM, and verification software.

MACH 232 Advanced CNC Machining I 5
This course provides the student with advanced practice associated with CNC machine programs.

MACH 233 Advanced CNC Machining II 5
A continuation of the concepts introduced in MACH 232, students work on advanced CNC machining projects.

MACH 234 CNC Milling II 5
Students learn material prep, machining, and the fundamental of the CNC control.

MACH 289 Independent Projects 1-18
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. PREREQUISITE: Instructor permission is required to enroll in this course.

MACH 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. PREREQUISITE: Instructor permission is required to enroll in this course.

CREDITS

MACH 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. PREREQUISITE: Instructor permission is required to enroll in this course.

MACH 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen. PREREQUISITE: Instructor permission is required to enroll in this course.

MACH 296 Work-based Learning Experience 1-13
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.

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MARKETING AND BUSINESS MANAGEMENT

MARK 101 Marketing Principles 5
This course introduces the student to the basic components of marketing goods and services with a focus on the following subject matter: basic consumer needs, creating and implementing a marketing strategy and the study of general marketing principles.

MARK 102 Customer Service 5
This course examines the techniques and processes to create a company wide customer service environment. Students will sharpen their skills in the areas of critical thinking, acquiring and retaining customers, and developing a service-oriented mindset, ensuring customer satisfaction, diffusing unsatisfactory situations and excelling in communication.

MARK 103 Written Business Communication 3
This class focuses on expressing plans, ideas and other business-based communication in written form. Students will demonstrate the ability to communicate through writing to clients, customers and co-workers at all levels.

MARK 104 Business Negotiations and Collaboration 3
This course presents a perspective of how to respond and resolve conflict through collaborative negotiations with positive results. Included are a variety of methods to establish rapport, trust and reliability, manage conflict in the negotiation process, and how to handle difficult power tactics.

MARK 105 Information Research and Acquisition 1
The ability to successfully research and acquire relevant information is very important in the competitive world of marketing. This class teaches how to utilize resources and sources to obtain and utilize that information.

MARK 106 Business Concepts 5
A wide array of business concepts are explored in this class including entrepreneurship, organizational systems, finance, marketing, management and international business.

MARK 107 Cross Cultural Communications 5
Students study the concepts of culture and its impact on organizations as they conduct business globally. Topics explored include: intercultural and cross-gender communication, political and economic philosophy, social structure, religion, language and education.

CREDITS

MARK 108 International Trade Practices 5
This course is an introduction to the key business concepts that individuals and businesses must understand to enhance results in international trade.

MARK 109 Economics: A Marketing Perspective 5
A study of economics, economic environments, and analysis of the economic factors involving the essentials of demand and supply; competition and monopoly; labor; public policy towards business; and the distribution of income.

MARK 110 Principles of Management and Supervision 5
Basic principles of management and supervision are studied and practiced. Students learn leadership skills related to working styles, coaching skills and working effectively with coworkers and subordinates.

MARK 111 Cyber Marketing/ E-Commerce 5
This class researches business organizations that market and sell on the Internet and assesses the impact of e-commerce on business and consumers.

MARK 112 Business Law 5
This class is designed as an introduction to the legal system and its impact and functions within the business world. Students will study legal reasoning, the process of resolving disputes and contractual agreements in the business community.

MARK 113 Accounting Principles 5
This course is an introduction to financial accounting principles and management accounting.

MARK 121 Branding/Corporate Identity 2
Students study the importance and impact of branding techniques and the creation of corporate identity in marketing products and services.

MARK 122 Advertising: Creation and Planning 4
This course explores planning aspects of promotional efforts and creation of effective advertising campaigns including student development of flyers, brochures, newsletters, direct mail packages and media releases

MARK 123 Business Software Applications 3
Students learn to expedite projects and planning efforts utilizing business software applications. This will help them in efficiency, time management and organization.

MARK 124 Sales Strategies and Consumer Psychology 5
This course examines the psychology of consumer behavior and use of sales strategies created to enhance consumer behavior in purchasing.

CREDITS

MARK 125 Business and Marketing Presentation Skills 3
Students develop the skills to create and deliver presentations that influence colleagues, clients and other audiences.

MARK 126 Planning and Leadership 5
This course is a general course for developing planning and personnel management skills required for successful sales, marketing, and managerial professionals.

MARK 127 Public Relations 3
This course examines how a firm gains audience exposure through the strategic placement of topics of public interest and news items that do not require direct payment. Students explore the role of public relations in marketing, how it differs from advertising, and the steps to develop a public relations campaign.

MARK 128 Marketing Research and Forecasting 3
This is an introductory course to the purposes, methods, and techniques of marketing research and the principles on which they are based.

MARK 129 Advanced Marketing Projects 5
Students complete independent marketing projects, such as business or marketing plan development, advertising project development, international marketing project development, advanced project risk analysis assessment, or international marketing research. Requires instructor approval prior to registration.

MARK 201 Introduction To Leadership Skills and Ethics 3
This course is an introduction to the various skills necessary to become an effective leader whether that role is as a member of a group, team leader, department head, supervisor or manager. This class also explores moral principle, decision making, community standards, corporate, community and personal responsibility.

MARK 202 Introduction To Strategic Marketing 4
This course delves deeper into marketing strategies enabling students to identify and minimize the effect of competitive forces. Organizational strategic planning efforts to communicate products and services are explored.

MARK 203 Introduction To Business Accounting/Finance 5
This course is designed for non-financial managers and introduces the accounting process, key financial documents, ratios and profit analysis.

CREDITS

MARK 204 Introduction To Presentation and Facilitation Skills 3
In this course, students enhance personal presentation skills in a variety of settings, from large groups to small business meetings. Meeting facilitation tactics are introduced and practiced as a part of this course.

MARK 205 Advanced Business Projects 5
Students complete independent marketing projects, such as business or marketing plan development, advertising project development, international marketing project development, advanced project risk analysis assessment, or international marketing research. Requires instructor approval prior to registration.

MARK 206 Teaming for Success 3
Students learn to apply successful leadership models, analyze personal leadership styles, understand and synergize the dynamics of a team and appropriately empower people to make correct team and organizational decisions.

MARK 207 Introduction To Managing Change 3
This course presents information on how leaders seek out, initiate, support, and manage needed change. Concepts explored included the process of change, communication, and building commitment to bring about change within an organization.

MARK 208 Achieving Results Through Influence 3
This course explores how effective leaders achieve results through and with others. Students learn how effective leaders persistently go after goals and measure success in terms of results achieved.

MARK 209 Entrepreneurial Concepts 5
A relevant course looking at ways to start and sustain a small business, students learn techniques on how to maximize limited resources, plan for growth, and remain profitable in today's economy. A detailed business plan as an individual project is completed.

MARK 210 Introduction to Project Management 4
This course is an exploration of practical skills that will enable students to better gain control of, and manage all aspects of business-oriented projects and increase team performance.

MARK 221 International Business Law 2
This course examines legal aspects of conducting business in a global environment, including U.S., foreign, and international legal systems and their affect on companies conducting global business; identifies customs, taxation and global employment regulations.

CREDITS

MARK 222 Supply Chain Operations 5
This course introduces the student to concepts of managing a supply chain on a global level including supply chain operational options such as transportation modes, inventory, time management, landed costs and customs requirements are studied.

MARK 223 Supply Chain Risk Management 2
This course provides an overview to risk management activities including aspects of the operation, marine insurance, transportation, international conventions, international conditions and cargo protection.

MARK 224 Supply Chain Intermediaries 5
This course introduces students to various types of supply intermediaries such as carriers, third party logistics providers, freight forwarders and brokers, U.S. customs regulations and foreign import requirements.

MARK 225 International Marketing 3
This course offers an introduction to international marketing strategies and decisions, including the evaluation of environments to determine viability of global market entry.

MARK 226 Offshore Procurement Process 2
Instruction introduces students to offshore procurements and the logistical elements involved with importing.

MARK 227 International Market Research and Planning 3
This course focuses on methods used to conduct viable market research appropriate to international environments and cultures.

MARK 228 Global Trade Financing 5
Students explore various options for financing international trade including financial policies

MARK 229 International Payment, Credit, and Collections 5
This course examines methods and terms of payment for goods and services associated with global/multinational trade.

MARK 230 Advertising Project-Marketing Implementation 1-5
Complete independent marketing projects, such as business or marketing plan development, advertising project development, international marketing project development, advanced project risk analysis assessment, or international marketing research. Requires instructor approval prior to registration.

CREDITS

MARK 291 Practical Applications 1-18
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.

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MARK 297 Work-based Learning Seminar 1-2
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.

MARK 298 Work-based Learning – No Seminar 1-18
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CREDITS

MECHANICAL ENGINEERING

MET 101 Computers As An Engineering Tool 4
Students learn how to navigate through the college's network, intranet and to utilize the Internet for program-related research. Folder and file creation and maintenance will also be taught.

MET 103 Drawing Sheet Standards 4
Using computer-aided-drafting (CAD) software, students learn how to create electronic drawing templates with requisite layers, line types and text styles. Drawing sheet attributes are also be addressed as students customize relevant settings.

MET 105 Orthographic Projections 7
Working with the "glass box" concept of orthogonally projecting an object to the six planes of view, students learn the necessity of strict adherence to the American Standard Arrangement of Views. First angle projection, used primarily in Europe and Asia are also discussed.

MET 106 Sectional Views 5
Students learn to develop an acceptable drawing of section views and to crosshatch the areas sectioned with sectioning lines appropriate to the material in use.

MET 107 Auxiliary Views 5
Proper dimensioning practice dictates that the drafter dimension features (surfaces and angles) only in those views where they are true shapes. Using projection techniques students learn how to "normalize" features found in orthogonal views.

MET 109 Annotative Scaling in AutoCAD 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 then apply those practices to the dimensioning of drawing previously created.

MET 110 Dimensioning Practices 7
This course is essentially the lab portion of MET 108 in that students dimension all orthogonal, sectional, and auxiliary drawings that were developed in earlier courses. Particular attention is paid to strict adherence to industry standards.

MET 111 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 learn how to 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.

CREDITS

MET 112 Basic Geometric Constructions 6
Using computer-aided-drafting (CAD) software, students learn how to generate all standard geometric and conic forms. Extensive work is required in the development of tangent arcs and planes.

MET 114 Introduction to Sketching 5
Engineering technicians, working in the field, are often required to hand draw parts, features of parts, and assemblies. This course teaches students to develop basic sketching skills so that they will be able to develop accurate and readable sketches.

MET 201 Machine Shop Drawings 4
Students learn how to draw and dimension working/production drawings necessary for machining, fabrication and/or assembly. The ability to fully annotate production drawings (general and specific notes, parts lists, and revision notes) is also an instructional objective of this course.

MET 202 Threads, Fasteners, and Springs 3
Students learn how to 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 be examined.

MET 203 Gears 4
Students study the characteristics of spur, worm and bevel gears and learn to calculate the gear ratio and rpm of two mating spur gears. Given the pitch diameters, these gears, and their respective tooth forms, a detailed drawing is created.

MET 204 Cams 4
This course provides students with the ability to develop displacement profiles for cams based upon given specifications and follower motions. A series of cams will then be drawn from these profiles.

MET 205 Pneumatic/Hydraulic Symbols 3
Students study common pneumatic and hydraulic symbols and develop computer-aided-drafting (CAD) symbols appropriate for industry applications.

MET 206 Piping and Instrumentation Drawings 4
Using the symbols developed in MET 205, students replicate industrial piping/process and instrumentation drawings (P&IDs).

MET 207 Valve Sections 4
Students develop sectional views of gate, globe, and check valves displaying details of all components. Addition study of valve applications may be provided through independent work in the Fire Protection Engineering program.

CREDITS

MET 208 Pump Section 4
The application of various pump classes and types is examined in order to determine how they add hydraulic energy to the movement of water. As with valves in MET 207, sectional views of a variety of pumps are developed in order to facilitate the students' understanding of their function.

MET 209 Production Drawings 4
Given duct system characteristics for airflow requirements, students develop detailed drawings of ventilation systems. Students complete these drafting projects in cooperation with the Sheet Metal Technology program.

MET 210 Duct Fitting Symbols 3
Students study common sheet metal duct fittings and develop computer-aided-drafting (CAD) symbols appropriate for industry applications.

MET 211 Flat Pattern Development 5
Using the principles of triangulation and radial line development, students develop flat patterns for such common types of sheet metal fittings as elbows and transitions.

MET 212 Basic Air Flow Systems 3
Students study the means by which air is distributed in mechanically ventilated spaces by means of fans, ductwork, and diffusers.

MET 213 Paper Space, Layout, and Viewports 5
Students learn to use space, layout, and viewports when working on CAD projects.

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.

MET 215 Axonometric Drawings 5
Students learn to differentiate between types of axonometrics and to draw axonometric drawings including plan obliques and isometrics.

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.

CREDITS

MET 217 Career Advancement Strategies 3
Students learn job search techniques, resume writing, and receive assistance in developing career goals and educational plans.

MET 291 Practical Applications 1-18
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.

MET 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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MET 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

MET 296 Work-based Learning Experience 1-18
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.

MET 297 Work-based Learning Seminar 1-2
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.

MET 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

OCCUPATIONAL THERAPY ASSISTANT

CREDITS

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.

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.

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.

OTA 104 Therapeutic Use of Self 5
Students in this course explore personal values and cultural attitudes that relate to individual performance and group interactions. Group roles, learning styles, leadership, and communication styles will be examined. Students develop basic skills for observation, interviewing, communication and documentation. Personality, insights, perceptions and judgments as part of the therapeutic process are covered.

OTA 105 Nervous System Functionin 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.

OTA 106 Therapeutic Activities and Performance I 5
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.

CREDITS

OTA 107 Developmental Disabilities and OT 5
Congenital conditions, diseases, and disabilities are covered and their effects on the psychological, physiological, and social domains of occupational behavior. Students develop observation and assessment skills, and teaching and grading self-care, work, leisure and play occupations for individuals with developmental challenges.

OTA 108 Applied Experience –Fieldwork Level-I A 1
Students participate in observations and guided practice opportunities for applying OT principles in settings serving individuals with developmental, psychosocial or physical challenges.

OTA 109 Adaptive Technologies 5
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.

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.

OTA 201 Therapeutic Activities and Performance II 5
More advanced course to develop creative problem-solving, clinical reasoning, and documentation skills through exposure to barriers for safety and independence. 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.

OTA 202 Psychosocial Dysfunctions: Treatment & Applications 8
Conditions that lead to psychiatric and social-emotional challenges are examined. Clinical features, medical management and issues impacting OT are covered. 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.

CREDITS

OTA 203 Applied Experience – Fieldwork Level-I B 1

Students participate in observations and guided practice opportunities for applying OT principles in settings serving individuals with developmental, psychosocial or physical challenges.

OTA 204 Seminar – Applied Mental Health 1

Discussion and problem-solving of fieldwork experiences are emphasized.

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.

OTA 231 OTA and Special Settings 4

Some settings require the OT assistant to be an independent self-starter. Occupational therapy practice with elderly clients in long term care, assisted living and home health care, pediatric clients in school settings, and injured workers in work condition programs are covered.

OTA 212 Applied Experience – Fieldwork Level-I C 1

Students participate in observations and guided practice opportunities for applying OT principles in settings serving individuals with developmental, psychosocial or physical challenges.

OTA 213 Seminar – Applied Physical Rehabilitation 1

Discussion and problem-solving of fieldwork experiences are emphasized.

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.

CREDITS

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.

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.

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.

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.

CREDITS

POWER SPORTS & EQUIPMENT TECHNOLOGY

CREDITS

POW 101 Introduction to Power Sports 5
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.

POW 102 Pre-Delivery Maintenance 3
Students learn to prepare new equipment for delivery to the consumer.

POW 103 Seasonal Maintenance 5
Students learn to prepare equipment for the recreational/work season and provide the service necessary at the end of the work/recreational season.

POW 104 Periodic Maintenance 5
Students learn to build their skills in maintaining optimum equipment/vehicle performance during the work/recreational season.

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.

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.

POW 122 Engines Installation Methods 5
Students learn to correctly assemble, perform the necessary adjustments, and correctly install engines in vehicles. Special emphasis is placed upon the utilization of service manuals and manufacturers' guidelines.

POW 130 Exhaust Systems 5
This course is an introduction to the theories of induction. Students learn to identify, diagnosis, repair, and maintain carburetor, electronic fuel injection, and direction injection systems.

POW 131 Lubrication/Cooling Systems 5
Students are introduced to the theories of cooling and lubrication and learn to identify, diagnosis, repair, and maintain lubrication and cooling systems. Special emphasis is placed upon the utilization of service manuals and manufacturers' guidelines.

POW 132 Advanced Engine Service 5
Students focus on engine performance and drivability and learn to identify, diagnosis, and repair engine performance problems. Special emphasis is placed upon the utilization of service manuals and manufacturers' guidelines

CREDITS

POW 140 Fundamentals of Electricity 3
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.

POW 141 Electrical Systems 5
Students are introduced to the electrical systems encountered in various types of motorized vehicles. Special emphasis is placed upon the utilization of service manuals and electrical schematics.

POW 142 Electrical Systems - Diagnosis 5
Students receive training and practice in servicing and repairing the electrical systems of various types of motorized vehicles. This includes problem identification, diagnostic testing, repair, and maintenance of batteries, starting, charging, ignition, and accessory systems.

POW 143 Brake Systems 4
Students are introduced to brake theory, identification, diagnosis of problematic brake systems and the repair and maintenance of various brake systems.

POW 150 Introduction to Power Trains 3
Students are introduced to power train theory, gear ratios, diagnosis of problematic power trains, and analysis of failed power trains.

POW 151 Power Train Service 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.

POW 152 Introduction to Marine Propulsion 3
Students are introduced to marine propulsion theory, gear ratios, diagnosis of problematic propulsion systems, and analysis of failed propulsion systems.

POW 153 Marine Propulsion Service 5
Students receive training in servicing and repairing the various modes of transmitting engine power to the water. This includes marine gear drive systems and jet pumps.

POW 160 Introduction to Chassis 3
Students are introduced to chassis theory, design, diagnosis of problematic chassis, and chassis service/repair methods.

CREDITS

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.

POW 162 Advanced Projects 7
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.

POW 291 Practical Applications 1-18
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.

POW 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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POW 296 Work-based Learning Experience 1-18
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.

CREDITS

POW 297 Work-based Learning Seminar 1-2

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.

POW 298 Work-based Learning – No Seminar 1-18

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CREDITS

PRACTICAL NURSE

PNUR 201 Nursing Math/Pharmacology 4

This course focus is on the practical nurse's role in medication administration to persons of all ages. Basic concepts, various medication delivery systems, dosage calculation, drug classifications, and nursing implications are presented for the various bodily systems. Safe administration and documentation of medications are presented in the laboratory setting.

PNUR 202 Personal Vocational Relationships 4

Students receive an overview of the health professions and the healthcare delivery systems with emphasis on the LPN's role in the health care working environment. Topics include nursing history, trends, disease prevention and wellness promotion, and guidelines for legal and ethical practice. Focus on the nursing process and basic therapeutic communications skills, basic human needs and healthy adjustments are also discussed with an emphasis on cultural, ethnical, and religious needs. Students review legal requirements for licensure as a practical nurse. Liability issues related to practice, as well as ethical issues are discussed. Students review the Washington Administrative Code for the practical nurse and discuss scenarios of how to work within professional boundaries. Students will recognize the need for change in the structured healthcare setting and demonstrate active participation in change.

PNUR 203 Nursing Fundamentals I/ Simulation I 7

This course provides the beginning nursing core upon which all subsequent nursing courses are built with emphasis on people as holistic beings with basic human needs. Included are specific nursing care principles common to all clients. Discussion focuses on identifying the needs of individuals within a family and community environment. Students will be introduced to simulation for enhanced demonstration & mastery of beginning nursing concepts and skills.

PNUR 220 Nursing Fundamentals II/Sim II 4

This course provides advanced nursing skills necessary for successful transition into clinical settings. Included are special nursing care principles common to all clients. Discussion focuses on identifying the needs of individuals within a family and community environment. Simulation scenarios become more complex to facilitate higher level nursing concepts and skills.

PNUR 221 Med Surg I 7

This course provides an overview of the care and management of patients with cardiovascular, respiratory and neurological disorders. Diseases are studied in relation to etiology, pathophysiology, clinical signs, medical management and geriatric implications. Discussions integrate principles of pharmacology/ medication administration, diagnostic testing, and nursing interventions to assist the client's return to maximum levels of function.

CREDITS

PNUR 222 Clinical I/Sim III/Clinical Math 4

Within a variety of clinical settings, students begin to utilize the nursing process to give comprehensive care to diverse population of clients. Clinical experience is correlated with theory under the guidance of faculty and enables student to implement skills and apply theory learned in the classroom. Simulation will be utilized to augment clinical learning opportunities.

PNUR 230 Med Surg II 5

This course provides an overview of the care and management of patients with endocrine, GI, GU, and orthopedic disorders. The diseases are studied in relation to etiology, pathophysiology, clinical signs and symptoms, medical management and geriatric implications. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist the client's return to maximum levels of function.

PNUR 231 Newborn/Maternal/ Reproductive Nursing 2

This course provides an overview of the practical nursing concepts of the care of women and newborns. Emphasis is on health promotion through antepartum, intrapartum, and postpartum stages of pregnancy as well as complications that may occur during pregnancy including complications of pregnancy. Discussions integrate holistic and self-care principles to assist women in general and the family as a whole. Included will be an overview of the care and management of patients with disorders of the breast and reproductive system. Diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management.

PNUR 232 Pediatrics 2

The course provides an overview of the nursing care concepts related to children and families within the healthcare setting. Discussions integrate principles of nutrition therapy, pharmacology/medication administration, cultural diversity, legal/ethical issues, and health wellness teaching which are utilized as a framework to integrate holistic and self-care capabilities for the family.

PNUR 233 Clinical II/Sim IV 3

Within a variety of clinical settings, using the experience gained in PNUR 122, students continue to utilize the nursing process to give comprehensive care to diverse population of clients. Clinical experience is correlated with theory under the guidance of faculty and enables student to implement skills and apply theory to practice. Simulation will be utilized to augment clinical learning opportunities and advanced nursing math principles will be introduced.

PNUR 234 Clinical III/ Sim V/Clinical Math 3

Within a variety of clinical settings, using the experience gained in PNUR 133, students continue to utilize the nursing process to give comprehensive care to diverse population of clients. Clinical experience is correlated with theory under the guidance of faculty and enables student to implement skills and apply theory to practice. Simulation will be utilized to augment clinical learning opportunities and advanced nursing math principles will be reinforced.

CREDITS

PNUR 240 Med Surg III 7
This course provides an overview of the nursing care concepts related to mental health, neurological, and the eye and ear disorders. Diseases are studied in relation to etiology, pathophysiology, clinical signs, and medical management and geriatric changes. Discussions integrate principles of pharmacology/medication administration, diagnostic testing, and nursing interventions to assist client s' return to maximum levels of function.

PNUR 241 Clinical III/Sim VI/Clinical Math 4
Within a variety of clinical settings, using the experience gained in PNUR 134, students continue to utilize the nursing process to give comprehensive care to diverse population of clients. Clinical experience is correlated with theory under the guidance of faculty and enables student to implement skills and apply theory to practice. Simulation will be utilized to augment clinical learning opportunities and advanced nursing math principles will be reinforced.

PNUR 242 Preceptor Experience 4
This course includes an experience with a staff licensed practical nurse as a mentor or preceptor in a selected clinical area for the student's final clinical experience.

PNUR 233R Independent Project 3
This course offers students an opportunity to work on lab-based clinical performance improvement in addition to clinical learning component. The project is based on prior clinical work deficiencies identified in PNUR 233 and are designed for the achievement of Clinical II objectives.

PNUR 234R Independent Project 3
This course offers students an opportunity to work on lab-based clinical performance improvement in addition to clinical learning component. The project is based on prior clinical work deficiencies identified in PNUR 234 and are designed for achievement of Advanced Clinical II objectives.

PNUR 241R Independent Project 4
This course offers students an opportunity to work on lab-based clinical performance improvement in addition to clinical learning component. The project is based on prior clinical work deficiencies identified in PNUR 241 and are designed for achievement of Clinical III objectives.

CREDITS

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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.

SHME 102 Metalworking Machines Technology 4
Students learn how to use various specialty hand and power operated metalworking machines in the shop atmosphere that were introduced in SHME 101. These include metal cutting shears, bending machines, forming machines, and common power tools.

SHME 103 Fittings Fabrication I 7
Students learn 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 student's technical reading skills.

SHME 104 Principles of Health and Safety 5
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 and as they proceed through the program.

SHME 105 Materials Technology 3
Students are introduced to and learn 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.

SHME 106 Hand Tools and Equipment 4
Students learn how to properly use various specialty hand tools in the shop atmosphere and are instructed on the proper use of circumference rulers, framing squares, numerous marking tools, metal cutting shears and joining tools.

CREDITS

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 principals of basic mathematics with equations involving fractions, decimals, percentages, practical geometry construction and trigonometry.

SHME 108 Introduction to Drafting 2
Students are introduced to basic terminology, drafting lines, labeling and object projection. Using the proper techniques, students create by hand drafting assignments that develop basic, orthographic and isometric views of shapes and sheet metal components.

SHME 109 Drafting Techniques 5
Students develop the skills necessary to visualize, draft and understand common and complex sheet metal components. Students apply triangulation principles and are introduced to parallel line development techniques. Pre-requisite: SHME 108

SHME 110 Layout Math 3
Students learn how to apply additional mathematical functions to perform pattern and line development for assorted arch lengths, squares, rectangles, and round fittings commonly used in the sheet metal industry. Pre-requisite: SHME 107

SHME 111 Technology of Seams and Locks 3
Students use a variety of machines to form complex seams, cleats, kinks and locks used in the fabrication and assembly of ventilation fittings. Pre-requisite: SHME 102

SHME 112 Fittings Fabrication II 8
Students' mastery of fabrication and layout skills are applied with the completion of the thirty fittings exam. Thirty commonly used components are produced within thirty hours. Students exercise their critical thinking skills as well as the production techniques that they have learned to this point in the program.

SHME 120 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.

CREDITS

SHME 121 Principles of Health and Safety 2
Students are introduced to the principles of safety and health and hazardous communications as they relate to construction. Students complete written assignments on these subjects. They apply various principles in the shop area and as they proceed through the program.

SHME 122 Hand Tools and Equipment 3
Students learn how to properly use various specialty hand tools in the shop atmosphere and are instructed on the proper use of circumference rulers, framing squares, numerous marking tools, metal cutting shears and joining tools. Pre-requisite: SHME 120

SHME 123 Metalworking Machines Technology 2
Students learn how to use power operated metalworking machines in the shop atmosphere. These include metal cutting shears, bending machines, forming machines, and common power tools. Pre-requisite: SHME 120

SHME 124 Fittings Fabrication I 4
Students learn how to fabricate a variety of commonly used heating and air conditioning (HVAC) elbows, "Y" branches, and transitional fittings. Students practice assembling a portion of these fittings. Students fabricate several additional custom fittings. This area of the program begins developing student's technical reading skills.

SHME 125 Applied Math 3
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 principals of basic mathematics with equations involving fractions, decimals, areas and an introduction to trigonometry.

SHME 126 Technology of Seams and Locks 2
Students use a variety of machines to form complex seams, cleats, kinks used in the fabrication and assembly of ventilation fittings. Pre-requisite: SHME 123

SHME 127 Prefabricated Components 2
The sheet metal (HVAC) production industry makes available to contractors a variety of installation components, thus saving the sheet metal worker considerable fabrication time. During this course, students learn to identify these system components and applications.

CREDITS

SHME 128 Material Handling Technology 2
Students are introduced to and learn 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.

SHME 129 Wood Working Tools 1
Students learn how to safely use carpentry power tools used for modifying wooden structures to accept HVAC and ducting installations.

SHME 130 Carpentry Installation 3
Students learn to measure, lay out and cut wooden elements of the residential structure using these openings to allow for the installation of HVAC systems and ductwork. Pre-requisite: SHME 129

SHME 131 Air Properties Technology 1
This course is an introduction to the properties of air, air handling principles, and HVAC system requirements.

SHME 132 Duct installation 3
Student learn how to install ducting systems, to include main supply ducts, return ducts, wall stacks, and lateral ducts. Pre-requisite: SHME 124

SHME 133 Residential Venting Technology 2
Students learn how to determine proper size and install a variety of venting examples for home heating and exhaust systems.

SHME 134 Unit Operations 2
Students learn about the operational components of various HVAC systems used in residential installations. Systems include electric furnaces, heat pumps, and gas furnaces. Pre-requisite: SHME 131

SHME 135 Code Principles 2
Students learn how to research, follow, and apply local residential and uniform building codes and guidelines as they pertain to the installation of HVAC systems, ducting, and venting.

SHME 136 Gas Piping Technology 2
Students learn to select appropriate size pipe, how to cut pipe, and how to use a pipe machine to allow for appropriate fittings.

SHME 137 Duct Design Technology 3
Students are introduced to, and learn how to use a Ductulator® to determine duct sizing. Pre-requisite: SHME 131

CREDITS

SHME 138 Preventive Maintenance 2
Students learn how to perform basic preventive maintenance procedures on a variety of furnaces and heat pumps. Pre-requisite: SHME 134

SHME 201 Introduction to Architectural Sheet Metal 3
Advanced students are introduced to principles and applications of architectural flashings, coping, gutters, downspouts, louver and conductor heads. Tasks involve design, fabrication and installation of these items.

SHME 202 Introduction to Blueprint Reading 3
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.

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. Pre-requisite: SHME 202

SHME 204 Layout Drafting II 3
Advanced sheet metal students continue to develop the spatial thinking skills necessary to visualize and understand more complex sheet metal components. Students apply principles dealing with parallel line and radial line development. Pre-requisite: SHME 109

SHME 205 Layout Drafting III 3
Advanced sheet metal students apply principles dealing with parallel line, radial line, triangulation and/or combinations of all three areas of layout. Pre-requisite: SHME 204

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. Pre-requisite: SHME 204 and 205

CREDITS

SHME 207 Energy Codes 3
Advanced students are introduced to versions of the Washington State Energy Codes, Uniform Mechanical Codes and International Residential Codes. 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.

SHME 208 Duct Design and Air Balancing - Basics 5
Advanced students are introduced to terminology pertaining to this important area of the sheet metal industry. Using mathematical formulas, elements such as friction loss, dynamic loss, cubic feet per minute, feet per minute, cross sectional area, fan pulley sizes, BTUs, duct sizes and round substitutions are calculated for numerous applications.

SHME 209 Duct Design and Air Balancing - Advanced 5
Advanced students use computer programs to determine proper heating and cooling loads, friction loss, dynamic loss, cubic feet per minute, feet per minute, cross sectional area, BTUs, duct sizes, critical paths and round substitutions for numerous applications. Pre-requisite: SHME 208

SHME 210 Solar Heating 2
Advanced students are introduced to terminology and principals and component identification of solar energy systems. Using mathematical formulas, they determine the operating effects and missing data for simulated applications.

SHME 211 Commercial Projects 6
Advanced sheet metal students apply their knowledge of design, lay out, and fabrication to real world, client projects. This includes handling the project from inception from client's requirements, through estimation of materials and shop costs, to completion of finished product.

SHME 291 Practical Applications 1-18
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.

SHME 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

SHME 293 Independent Projects 1-5
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SHME 294 Independent Projects 1-5
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SHME 296 Work-based Learning Experience 1-18
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.

SHME 297 Work-based Learning Seminar 1-2
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.

SHME 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

SOFTWARE DEVELOPMENT

SOFT 101 Computer Concepts 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.

SOFT 102 Programming Fundamentals 5
In this course, students are provided with the fundamental skills needed for designing computer programs. Focus is on problem analysis and developing algorithms for the step by step solutions to problems

SOFT 103 Operating Systems 5
This course is designed to introduce the student to an operating system environment. Instruction includes installation and configuration; learn your way around the desktop, as well as building skills using commands.

SOFT 121 C-Sharp I 5
This hands-on course is ideal for learning programming in a Windows environment. Topics include: introduction to C#, controls, variables, constants, dialog boxes, menus, lists, loops and arrays. This class incorporates basic concepts of programming, problem solving, and programming logic and design techniques. PREREQUISITE: Programming Fundamentals

SOFT 122 C-Sharp -II 5
This in-depth course will explore intermediate and advanced technologies using the .NET framework. Topics include conditional statements, objects, structures, classes, properties, inheritance, exception handling, string formatting, file handling, and language fundamentals. PREREQUISITE: SOFT 121

SOFT 132 C++ II 3
This course includes object-oriented design in the C++ language. Topics covered include inheritance, Dynamic memory allocation, namespaces and code reuse. Prerequisite: JAVA I

SOFT 142 Programming in JAVA II 5
Develops fundamental concepts and techniques for analysis, design, and implementation of computer programs using an object-oriented language. Includes graphical user interfaces, event driven programming, recursive techniques, and simple data structures. Prerequisite: Java I

SOFT 204 Open Source Programming 5
This course leverages the knowledge gained in previous courses in do development in an open source environment. Students will work in a Linux environment and utilize an open source programming language and open source database software. Prerequisites SQL, Operating System and JAVA II.

CREDITS

SOFT 205 Visual Basic I 5
This course introduces event-driven computer programming using the Visual BASIC programming language. Topics include input/output operations, syntax, program structure, data types, arithmetical operations, functions, loops, conditional Statements and other related topics. Prerequisite: SOFT 102

SOFT 206 Visual Basic II 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. Prerequisite: SOFT 205

SOFT 207 Dynamic Web Pages 5
Students design and implement an interactive, data-driven Website using C# and ASP.net. Topics include objects and inheritance; debugging and error handling; managing state and a database server and users; security; and best practices. Prerequisite: SOFT 122

SOFT 208 Principles of System Analysis and Design 5
This course examines the spectrum of requirements for the design, planning, and implementation of computer systems. Through case studies, students will analyze existing situations in order to propose new systems solutions

SOFT 209 Emerging Technologies 5
This course offers students an opportunity to independently research a technology that is determined by both the instructor and the student. Students will use the acquired skills to create a project or presentation.

SOFT 210 Mobile Device Programming 5
Students in this course will be introduced to the development process for creating applications for mobile devices. The course will utilize the JAVA programming language and work with device emulators. Prerequisite: JAVA II

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.

SOFT 291 Practical Applications 1-18
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.

CREDITS

SOFT 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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SOFT 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

SOFT 296 Work-based Learning Experience 1-18
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.

SOFT 297 Work-based Learning Seminar 1-2
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.

SOFT 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

WEB DEVELOPMENT

WEB 101 Microsoft Office Applications 5
This course focuses on developing essential skills using Word, Excel, PowerPoint, and Outlook. Topics include creating and editing Word documents, and an introduction to Excel worksheets, charts, formulas and basic functions. PowerPoint focuses on enhancing presentations with illustrations and shapes. Outlook introduces essential E-mail and contact management skills. Prerequisite: Keyboarding.

WEB 102 HTML, XHTML and CSS 5
Using a text editor, this course builds 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. Prerequisite: Keyboarding.

WEB 103 Operating Systems 5
This course is designed to introduce the student to an operating system environment. Instruction includes installation and configuration; learn your way around the desktop, as well as building skills using commands.

WEB 201 Internet Technologies 5
From browsing and searching to the latest in emerging Web technologies, this course covers essential to comprehensive topics understanding and using the Internet. Discover the technical concepts and services that make the Internet work. Current Internet trends are identified and discussed in this course. Prerequisite: Computer Concepts.

WEB 202 Web Authoring Editor 5
This course focuses on how to design and maintain Web Pages using an industry-standard Web editor. Students practice setup of site configuration, creating and editing web pages using tables, forms, templates, Cascading Style Sheets (CSS), positioning, and media objects. Prerequisite: HTML, XHTML and CSS.

WEB 203 Photoshop for the Web 5
Students practice how to edit, manipulate, enhance, and optimize digital images using industry-standard software. Skills covered include selection techniques, working with layers, drawing and painting, enhancing photos, applying filters, creating actions, drawing vector graphics, and creating web pages and animations.

WEB 204 Web Site Animation using Flash 5
Students practice hands-on using Flash's drawing, image, text, animation and sound capabilities and build interactive content that can be shared over the Internet. Students will create a Flash web site, integrate Flash components and use basic ActionScript. Prerequisite: Photoshop.

CREDITS

WEB 205 Web Site Design 5
This course focuses on Web page planning, basic design, layout and construction of a Web site. Theories related to visual communication and design of online material will be discussed. Prerequisite: Web Authoring Editor, Photoshop for the Web and Site Animation using Flash.

WEB 206 Technology Topic 5
This course offers students an opportunity to independently research a technology that is determined by both the instructor and the student. Students will use the acquired skills to create a project or presentation.

WEB 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.

WEB 291 Practical Applications 1-18
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.

WEB 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

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WEB 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WEB 296 Work-based Learning Experience 1-18
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.

CREDITS

WEB 297 Work-based Learning Seminar 1-2
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.

WEB 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

WELDING

WELD 101 Safety Principles 2
This course is an introduction to the safety practices and procedures common to the welding industry

WELD 102 Fabrication Plans 4
Students learn to read, interpret and create graphic drawings to complete welding projects.

WELD 103 Pre and Post-welding Activities 2
This course is an introduction to the tools, equipment, and materials used in the layout and fabrication of welding projects.

WELD 104 Oxy/acetylene Cutting 3
This course is an introduction to the use of oxy/acetylene welding and cutting equipment.

WELD 105 Introduction to Shielded Metal Arc Welding (SMAW) 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.

WELD 106 Welding Math 5
Students learn and apply various math concepts to solve problems common to the welding industry. Applications include project estimates including both material and labor costs and layout and fabrication operations. Applied functions range from English/metric conversions to area and volume calculations.

WELD 107 Torch Brazing and Soldering 1
Students learn to perform brazing and soldering techniques with emphasis on the changes in the process encountered at various temperatures.

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.

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.

WELD 110 Full Penetration Welds – Open Root 5
This course is an advanced SMAW class using fast freeze electrodes in preparation for pipe welding.

CREDITS

WELD 111 Introduction to Gas Metal Arc Welding (GMAW) 3
Students receive instruction on the GMAW process learning theory, safety, and equipment set up.

WELD 112 Gas Metal Arc Welding – Full Penetration 5
In this course the students learn the hands-on application of the different transfer modes of GMAW on mild steel in all positions.

WELD 113 Gas Metal Arc Welding – Aluminum 5
In this course the students learn the hands-on application of the different transfer modes of GMAW on aluminum in all positions.

WELD 114 Introduction to Flux Core Arc Welding (FCAW) 5
Students receive instruction on the FCAW process learning theory, safety and equipment set up.

WELD 115 Flux Core Arc Welding – Full Penetration 5
Students learn the hands-on application skill of FCAW in all positions, on mild steel.

WELD 116 Carbon Arc Cutting (CAC) and Plasma Arc Cutting (PAC) 5
Students learn how to safely use plasma arc and carbon arc cutting cutting techniques.

WELD 201 Introduction to Gas Tungsten Arc Welding (GTAW) 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.

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.

WELD 203 Gas Tungsten Arc Welding – Aluminum 100 5
Students learn to perform GTAW fillet and groove welds on aluminum.

WELD 204 Welding Certification Testing – (SMAW) 5
This course gives the student certification testing time in SMAW.

CREDITS

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 learn to perform SMAW welds to applicable codes on carbon steel pipe with prescribed electrodes in various positions.

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.

WELD 207 Welding Certification Testing – (FCAW) 5
This course gives the student certification testing time in ((FCAW

WELD 208 Non-Destructive Testing (NDT) 1
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.

WELD 209 Forklift Training 1
Students learn to operate forklifts in a safe and professional manner. Important aspects of Forklift operation including safety considerations and center of balance guidelines are emphasized.

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.

WELD 291 Practical Applications 1-18
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.

WELD 292 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

CREDITS

WELD 293 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WELD 294 Independent Projects 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 should be based on prior course work and should result in the achievement of advanced learning in the subject area chosen.

WELD 296 Work-based Learning Experience 1-18
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.

WELD 297 Work-based Learning Seminar 1-2
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.

WELD 298 Work-based Learning – No Seminar 1-18
This course is provided for students who participate in a work-based learning experience but cannot meet for the weekly seminar. This usually applies to specialized areas where the worksite is outside of the geographical area.

CREDITS

BASIC STUDIES COURSE DESCRIPTIONS

CREDITS

BASIC STUDIES COURSES

For adults seeking to improve skills in reading, writing and math. The following courses prepare students for more advanced courses, to improve COMPASS scores, GED testing, and workplace and life situations.

ABE 060 Low Intermediate Basic Education
ABE Level 3 course designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills and, at intake, score 211-220 on a CASAS test.

ABE 070 High Intermediate Basic Education
ABE Level 4 course designed to teach reading, writing, and computational skills to individuals who have a goal to improve basic skills and, at intake, score 221-235 on a CASAS test.

BSEP 070 Basic Studies Educational Planning – Vocational
Course for adult students in all basic studies competency levels with a goal or interest in transition to post secondary education or training. Course outcomes include assessment of current student abilities, orientation to college resources and services, readiness to learn; student's personal, educational, and employment background and interests; student's skill gaps, learning deficiencies, and difficulties; barrier identification with strategies, recommendations, and interventions for improvement; student's long-term and short-term goals; identification of the skills needed to reach those goal, and an education plan of action for the student to transition to post secondary studies

BSEP 080 BSEP Mental Toughness
This is a 30-Hour program consisting of skills assessment, goal setting, learning styles and strategies and barrier identification and mitigation planning to prepare students to be successful in selecting and participating in integrated GED preparation and professional technical skills training. Students may take this class only once per academic year.

ENGL 080 GED Writing
Basic GED preparation writing course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

ESL 057 Low Beginning ESL Listening and Speaking
ESL Level 2 courses in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 181-190 on a CASAS test.

CREDITS

ESL 058 Low Beginning ESL Reading and Writing
ESL Level 2 course in reading, and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 181-190 on a CASAS test.

ESL 067 High Beginning ESL Listening and Speaking
ESL Level 3 course in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 191-200 on a CASAS test.

ESL 068 High Beginning ESL Reading and Writing
ESL Level 3 course in reading and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 191-200 on a CASAS test.

ESL 077 Low Intermediate ESL Listening and Speaking
ESL Level 4 course in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 201-210 on a CASAS test.

ESL 078 Low Intermediate ESL Reading and Writing
ESL Level 4 course in reading and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 201-210 on a CASAS test.

ESL 081 ESL - Success Strategies
Students learn applied techniques for increasing personal effectiveness and productivity through goal setting, self-reflection, self-evaluation, and positive interactions. This course provides a basis for success in the community and workplace environments by incorporating cultural awareness and adjustment skills.

ADULT BASIC EDUCATION (ABE)

Adult Basic Education (ABE) classes help students who may or may not have a high school diploma, improve mathematics, reading and writing skills.

Students enroll in adult basic education to prepare for further general education courses, to complement career education, to prepare for General Education Development (GED) testing, and for personal improvement.

Students take assessment tests and are then placed in appropriate classes for their skill level and personal educational goals. (See page 10.)

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ESL 087 High Intermediate ESL Listening and Speaking
ESL Level 5 course in listening and speaking for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 211-220 on a CASAS test.

ESL 088 High Intermediate ESL Reading and Writing
ESL Level 5 course in reading and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 211-220 on a CASAS test.

ESL 089 Low Advanced ESL
ESL Level 6 course in listening, speaking, reading, and writing for limited English-proficient adults with a goal to improve their English literacy who, at intake, score 221-235 on a CASAS test.

GED 080 GED Test Preparation
Basic GED preparation course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

MATH 070 High Intermediate Basic Math
ABE Level 4 course designed to teach computational skills to individuals who have a goal to improve basic skills and, at intake, score 221-235 on a CASAS test.

MATH 080 GED Math Preparation
Basic GED preparation math course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

MATH 086 Pre-Algebra I
Basic mathmatical and computational concepts for students with a vocational education goal who, at intake, score 236-244 on a CASAS test. Text: Martin-Gay, PreAlgebra, 5th Edition

MATH 087 Pre-Algebra II
Basic mathmatical and computational concepts for students with a vocational education goal who at intake score 245 or higher on a CASAS test. Text: Martin-Gay, PreAlgebra, 5th Edition

READ 070 High intermediate Basic Reading
ABE Level 4 reading course designed to teach reading to individuals who have a goal to improve basic skills and, at intake, score 221-235 on a CASAS test.

READ 073 Reading Development IV .5cu
Evaluating, comprehending and making inferences from a variety of reading materials including textbooks, technical manuals and works of fiction. High school student placement is after the completion of Basic Studies Educational Planning (BSEP).

BASIC STUDIES COURSE DESCRIPTIONS

CREDITS

READ 080 GED Reading
Basic GED preparation reading course for students with a goal of earning the General Educational Development (GED) equivalency certificate who, at intake, score 236 or higher on a CASAS test.

READ 089 Transitional Reading
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.

WRIT 085 Writing Transition Lab I
Competency based small cohort writing instruction for students with CASAS scores 221-259 at entry as an alternative contextual pathway to prepare students for enrollment and success in a specified related instruction course required for a specific professional technical credential. This course may be continued for multiple quarters.

HIGH SCHOOL 21+ COURSES

HSCCA 080 Cultural Awareness-Elective 5
This online course is designed for students who intend to increase reading levels and/or earn elective course or occupational ed credits. By the end of this course students should be able to navigate MLA formatting and interpret culturally sensitive situations with higher levels of critical thinking. A CASAS score of 211 or higher is required to participate in this course.

HSCCS 080 College Readiness-Elective 5
This course is offered online and as a web enhanced/ hybrid class. It is designed for students who intend to earn credits or competency in college navigation skills. By course completion students should be able to use college resources on campus effectively and be ready to transition tocollege level coursework. A CASAS score of 211 or higher is required to participate in this course.

HSCEN 080 English I 5
This course is designed to prepare students to take the GED writing test and/or for English 090 and/or earn credits in English for high school completion. This course will enable students to write several connected paragraphs with correct mechanics, usage, and varied sentence structure. This course is contextualized with social studies instruction, allowing the students to practice writing effectively about history and social issues. A CASAS score of 211 or higher is required to participate in this course.

CREDITS

HSCEN 081 English II 5
This course is designed to prepare students to take the GED writing test and/or for English 090 and/or earn credits in English for high school completion. This course will enable students to break down and discuss, orally and via written text, subject matter concerning the sciences. Correct grammar and technical writing is emphasized with this course. This course is contextualized in different science courses offered throughout the year. A CASAS score of 211 or higher is required to participate in this course.

HCEN 082 English III 5
This course is designed to prepare students to take the GED writing test and/or for English 090 and/or earn credits in English for high school completion. Students will improve their ability to plan, write, revise, and edit a well-organized essay with correct mechanics, usage, and varied sentence structure. Students will also gain skills in word processing and Internet use. Instructional methods include lecture, use of computer lab, and group activities. This course is contextualized in various social studies classes offered throughout the year. A CASAS score of 211 or higher is required to participate in this course.

HSCEN 083 English IV 5
This course is designed to prepare students to take the GED writing test and/or for English 090 and/or earn credits in English for high school completion. Students will improve their ability to plan, write, revise, and edit a well-organized essay with correct mechanics, usage, and varied sentence structure. Students will also gain skills in word processing and Internet use. Instructional methods include lecture, use of computer lab, and group activities. This course is contextualized in various science classes offered throughout the year. A CASAS score of 211 or higher is required to participate in this course.

HSCEN 084 English V 5
This course is designed to prepare students to take the GED writing test and/or for English 090 and/or earn credits in English for high school completion. Students will improve their ability to plan, write, revise, and edit a well-organized essay with correct mechanics, usage, and varied sentence structure. Students will also gain skills in word processing and Internet use. Instructional methods include lecture, use of computer lab, and group activities. This course is contextualized in various science classes throughout the year. A CASAS score of 211 or higher is required to participate in this course.

CREDITS

HSCEN 085 Write 085 5
This course is designed to prepare students to take the GED writing test and/or for English 090. Students can also earn High School Completion English credit. Students will improve their ability to plan, write, revise, and edit a well-organized essay with correct mechanics, usage, and varied sentence structure. Students will also gain skills in word processing and Internet use. Instructional methods include lecture, use of computer lab, and group activities. This course is contextualized in science and/or health. A CASAS score of 211 or higher is required to participate in this course.

HSCEN 086 English MLA 5
This course is designed to prepare students to take the GED writing test and/or for English 090. Students can also earn High School Completion English or elective credit. This course will enable students to evaluate and use MLA formatting and structure in assigned essays. Students will determine the difference between plagiarism and paraphrasing and the importance of citing their sources. Students will have guided practice in putting the knowledge of these terms to use in their own writing. A CASAS score of 211 or higher is required to participate in this course.

HSCEN 087 English 87 5
This course is designed to prepare students to take the GED writing test and/or for English 090 and/or earn credits in English for high school completion. This course will enable students to learn academic language associated with social studies/civics. Students will use content area vocabulary and write the five paragraph essay model. Students will also practice writing connected paragraphs with correct mechanics, usage, and varied sentence structure. A CASAS score of 211 or higher is required to participate in this course.

HSCEN 089 English and Reading 5
This course is designed to prepare students to take the GED writing test and/or for English 090 and/or earn credits in English for high school completion. This course will enable students to write several connected paragraphs with correct mechanics, usage, and varied sentence structure. This course is contextualized in the online Scientific Processes in Biology Class, Civics or an independent reading novel as literature assigned by the instructor. Understanding and using proper research methods along with writing a research paper is another major component to the successful completion of this course.

CREDITS

HSCFA 080 Fine Art **5**
This independent study course is designed for students to earn an art credit for their high school completion. Within this course, students write and reflect on art by critically reading, analyzing, and interpreting pieces of art and related research materials by writing a research and reflection paper. Students also produce a piece of art in the style of the artist researched.

HSCFA 081 Art Appreciation **5**
This online course is designed for High School 21 students who intend to earn credits in a Fine Arts class. By the end of this course students should be able to identify types of fine arts, and practice art criticism by using art to express feelings, present ideas and communicate for a specific purpose. Students will learn the skills necessary to navigate an online course in CANVAS.

HSCHI 080 United States History and Government **5**
This web enhanced course is designed for students to earn credit for their high school completion or develop skills necessary pass the GED social studies test. This course is designed to allow students to learn how to critically read and interpret writing on United States history and government through lecture, group work, writing assignments, quizzes and tests. This course is contextualized with an English class to allow for reading and writing development.

HSCHI 081 WA State History **5**
This online and/or web enhanced course is designed for students to earn credit for their high school completion or enhance skills necessary to pass the GED social studies test. This course allows students to learn how to critically read and interpret texts in Washington state history and government. Students will respond to readings by composing short answers and five paragraph essays. This course is contextualized with an English class to allow for reading and writing development.

HSCHI 082 Contemporary History **5**
This web enhanced course offers a chance to earn high school completion credit or the skills necessary to pass the GED social studies test. It is designed to give students an understanding of the historical change over the course of time. Students will read, take tests and respond to related documents in writing. This class is also designed to enable students to write research papers using correct grammar, structure, and formatting. This course is contextualized with an English course for reading and writing development.

CREDITS

HSCHI 086 Early America **5**
This online course is designed to allow students to earn high school completion credits or develop the skills necessary to pass the GED social studies test. Students learn how to critically read and interpret texts pertaining to Early American history. Students are asked to produce writings using MLA formatting and higher level critical thinking in their responses to the readings.

HSCHI 087 Civics **5**
This course is designed to allow students to earn high school completion credits or develop the skills necessary to pass the GED social studies test. English contextualization allows for the opportunity to earn English competency in this course. This course serves as an introduction to the study of civics and citizen rights along with the development of the laws that protect citizens of WA State and the USA. Emphasis is placed on the vocabulary and how to protect ones' self in common legal situations. Upon completion, students should be able to demonstrate knowledge of these laws and the daily use of them.

HSCHP 080 Health **5**
This online course allows for high school completion health credit. It is designed to enable to students to articulate their own personal philosophy on healthy living. Students will research fitness and healthy eating, and write their philosophy, with supporting research. Students will also research a health issue from an approved list and summarize their findings, including their research sources.

HSCHP 081 Physical Education **5**
This course is designed to enable students to earn PE credit for high school completion. The student tracks and analyzes their daily physical activity over an assigned period of time. Students evaluate their fitness choices and set goals for improvement. Students will research evidence to support their fitness goals and write a research paper containing their data, research, analysis and evaluation.

HSCHP 082 Healthy Bodily Systems **5**
This online course is designed to offer health credit for high school completion. The course enables students to learn ways to keep different bodily systems and functions healthy. This course is also designed to help students apply their knowledge to their own healthy habits. Students will be exposed to new academic language associated with bodily systems and use this new terminology in written critiques of the readings.

CREDITS

HSCHP 083 Health Psychology **5**
This course is offered as an online option or as a web enhanced option for Health or Science and English credit. This course may be used as GED prep for passing the ELA or Science GED test. The course provides information regarding health and the human psyche that helps students understand themselves and others. The information contained in this course will be useful for future success in relationships, as well as future career and educational objectives. This course is contextualized with an English course to offer reading and writing development.

HSCHR 080 Read 80 **5**
This online add-on course will enable students to earn English credit within their online science or health classes. Students will discover and evaluate new reading strategies that will help with comprehension and use of new information regarding health and/or science topics. Students will learn strategies for vocabulary comprehension and how to use the new words in sentences. Students will critique writing strategies and use them while reading materials on health and science topics. CASAS score of 211+ is required to take this course.

HSCM 080 Math I **5**
This course is designed for students with a CASAS math score of 211-220 to improve basic computational skills to advance to Math II or MATH 86. A high school completion credit will be awarded to those in high school 21+ upon passing of this course. This course can be used as a stepping stone toward development of skills to pass the math GED test.

HSCM 083 Math II **5**
This course is designed to allow students to learn how to apply mathematical concepts and procedures to answer questions, solve problems, make predictions, and carry out tasks with mathematical dimension. Upon passing this course students will earn high school 21 math credit or can move on to Math 86 or 87. This class may be used as a stepping stone toward development of necessary skills to pass the math GED test. A CASAS scores of 221-235 is required to take this course.

HSCM 086 Math 86 **5**
This is a developmental math course and serves as the preparatory perquisite for Math 87 and Math 92. This course is designed to allow students to learn basic algebraic mathematical and computational concepts. Upon completion of this course high school 21+ students will earn one credit. This course may be used as a stepping stone toward gaining the necessary skills to pass the math GED test. A score of 236-244 on a CASAS is required to take this course.

CREDITS

HSCM 087 Math 87 5
This is a developmental math course and serves as the preparatory prerequisite Math 92. This course is designed to allow students to learn secondary level algebraic mathematical and computational concepts. This course may be used as a high school 21 credit when passed. This course may also help students develop the skills necessary to pass the math GED test. A score of 245 or higher on CASAS is required to take this course.

HSCOE 080 Occupational Ed 5
This course is designed to allow for high school completion occupational-ed credit. The class is designed to enable to students identify, research, and analyze a career of their choosing. Students will identify key statistics, employment opportunities, and research required training and credentials. Students will also complete also complete a proper resume. A CASAS score of 211 or higher is required to participate in this course.

HSCPL 080 Prior Learning Assessment 5
This course gives high school 21 students an opportunity to prove competency in several subjects via portfolio or written work. Proper use of grammar, editing and formatting is required to earn credit in the written piece to display competencies in subjects needed to graduate from HS21+. Portfolios must be professionally presented using proper materials that can communicate competency in the credited subject area. A CASAS score of 211 or higher is required to participate in this course.

HSCSC 080 Environmental Science 5
This course offers opportunity for high school completion students to earn science credit. This class can be used as a GED science preparatory class. Ecology is the study of the interactions between organisms and their environment. In this course we will investigate these interactions using mathematical models, computer simulations, and labs. This class is also designed to enable students to write essays using correct grammar, structure and formatting. This course is contextualized with an English class. A CASAS score of 211 or higher is required to participate in this course.

HSCSC 082 Human Biology 5
This course offers the opportunity to earn high school completion lab science credit. This course may be used as a preparatory course for passing the Science GED test. Human biology is the study of human life processes. This course focuses extensively on anatomy and physiology. This class is also designed to enable students to write essays using correct grammar, structure and formatting. A CASAS score of 211 or higher is required to participate in this course.

CREDITS

HSCSC 084 Human Development 5
This course provides an opportunity for earning high school 21 science credit and/or can be used as a science GED test prep class. This course provides an introduction to the study of human growth and development. Emphasis is placed on the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life. A CASAS score of 211 or higher is required to participate in this course.

HSCSC 085 Scientific Theory and History 5
This online course is designed for High School 21 students who intend to earn credits in an English and/or a Science course. This course focuses extensively on the ethics of science and scientific history. A general overview of the purpose of science and scientific theory is also presented. This class is contextualized with English to enable students to write essays using correct grammar, structure and formatting. A CASAS score of 211 or higher is required to participate in this course.

HSCSC 089 Scientific Processes in Biology 5
This online course is designed for High School 21 students to earn lab science credit outside the classroom. Biology is the study of life processes. This course focuses extensively on the scientific method and a general overview of biology as a science that builds our knowledge of living things. This class is contextualized with English content and therefore also designed to enable students to write essays using correct grammar, structure and formatting. A CASAS score of 211 or higher is required to participate in this course.

TECHNICAL HIGH SCHOOL COURSES

ART

ART 091 Appreciation Public Art .5cu*
Understanding and appreciating public art, past and present. Students trace the heritage of the public art form from cave paintings to modern works in Tacoma. Students address the ideas behind public art and the issues around the vision for public art and the governmental processes by which it is designed, approved and installed.

Art 092 History of Modern Art .5cu
The study of the history of the development of modern art, beginning with the 19th Century and concluding with an emphasis on contemporary art and architecture. Students critically examine and assess the esthetics of art styles and ideologies.

ART 093 Performance Art .5cu
Students demonstrate thinking skills during the process to develop and perform an artistic work(s) for others.

CREDITS

ART 094 Color and Design .5cu
Students practice drawing, painting, and sketching skills with various media, and are introduced the elements of classic and modern design.

ART 095 Visual Arts Portfolio .5cu
Students demonstrate the ability to apply arts concepts through creation of a visual arts portfolio in one or more arts genre.

Art 097 Three Dimensional Design .5cu
Students focus on gaining skills to create 3-dimensional works of art. Students design and construct projects exploring linear, planar, and solid forms through the use of wire, cardboard, wood, and wax.

ENGLISH

ENGH 092 COE English .5cu
High School English course that specifically prepares students for completing an alternative assessment to WA State HS Reading and Writing graduation exams.

ENGH 093 Senior Culminating Project .5cu
Students attend a series of workshops and complete either a technical or community service project, work with a mentor in school or in the community, develop a personal portfolio of work, write a paper reflecting on their learning and present a multi-media presentation to a community or peer panel.

ENGH 096 American Literature & Composition .5cu
The study of a variety of American Literature short stories and novels. Students examine the of the elements of theme, plot, character, setting, point of view, and tone and use a computer to complete online reading and writing assignments.

HEALTH & PHYSICAL EDUCATION

HLTH 091 Nutrition and Fitness I .5cu
Nutrition and fitness play a crucial role in maintaining a healthy lifestyle. Study the fundamentals and roles of nutrition and participation in fitness activities. (13 hours lecture; 37 hours lab) Instructor will specify schedule of required lectures.

HLTH 093 Fitness II .5cu
Learn the importance of establishing individualized fitness goals and safety through classroom presentations and participation in fitness activities. (5 hours lecture; 45 hours lab) Instructor will specify schedule of required lectures.

HLTH 095 Health I .5cu
Acquire knowledge and skills necessary to maintain a healthy life and evaluate the impact of real-life influences on health.

HIGH SCHOOL COURSE DESCRIPTIONS

*** CU = Carnegie Units**

CREDITS

HISTORY/SOCIAL STUDIES

GEOG 093 World Geography .5cu
Survey of world geography and its interrelationship with specific areas. Classes are presented in seminar format with lecture and discussion. Students conduct library research to complete an individual research project relating to the world's physical and political geography.

GLOB 095 Current Global Issues .5cu
The study of world history, geography and current events, intertwined to show links between past and present with particular attention to current events.

GOVT 095 Civics .5cu
A study on how local, state and federal governments work. Extensive study of the U.S. Constitution. The development of the nation from colonization through the Civil War. Explores the American Revolution, formation of the U.S. Constitution, consolidation of the states, early economic growth, slavery, westward expansion and other causes of the Civil War.

HIST 090 US History I .5cu
History of the political, social, economic and cultural development of the United States from the events that led to the Revolutionary War to the US Civil War.

HIST 092 US History II .5cu
A study of the development of the United States from Reconstruction through present times. Covers the industrial era, Indian affairs, populism, progressivism, various wars, civil rights, the Cold War and its end.

HIST 095 Film History .5cu
A study of social and cultural themes as presented through historic and modern cinema.

HIST 096 Washington State History .5cu
HIST 0960L Washington State History (Online)
History of the Pacific Northwest, with emphasis on the political and economic development of Washington state.

HIST 098Scientific Revolution + Modern America .5cu
A laboratory hands-on history of the development of knowledge through science and applied technology, and, the impact of science and technology on the growth and development of modern America.

MATHEMATICS

MTTH 086 HS Pre-Algebra I .5cu
Introduction to pre-algebra mathematical and computational concepts for high school students, who at intake score 236-244 on CASAS Test.

MTTH 087 HS Pre-Algebra II .5cu
Introduction to pre-algebra mathematical and computational concepts for high school students, who at intake score 245 or higher on CASAS test or have completed MTTH 086.

CREDITS

MTTH 091 HS Algebra I .5cu
High School Algebra course that specifically prepares students for the WA State HS mathematics graduation exam.

SCIENCE

HSCI 093 Molecules to Organisms .5cu
Students delve into the interactions of molecules and their roles in organismal processes; a particular focus is on human body systems. This course may also be used as a HS health credit.

HSCI 095 Heredity .5cu
The study of chromosomes, traits, cellular meiosis and mutations and the variation and change in organisms and populations over time.

HSCI 096 Biological Evolution .5cu
The study of the changes in the genetic makeup of populations of organisms over time. This is a lab science course.

HSCI 098 Ecology .5cu
The study of the interactions between living organisms and their environment. This is a lab science course.

SCI 094 Introduction to Physics .5cu
Application of physics in everyday life with emphasis on the conceptual understanding of the underlying principles of motion, friction, gravity, energy, fluids, electricity, and magnetic fields.

SCI 098 Atmospheric Science .5cu
The application of the science of meteorology for commercial and industrial uses, including meteorological codes used in weather observing and forecasting; types and applications of weather satellite pictures; impact of severe weather (floods, high winds, tornadoes, hurricanes, etc.) on life and the economy; presentation of weather for the media; types and formations of clouds; interpretation of weather radar data; analysis of weather charts; and a practical weather forecasting lab. Elements of the sciences of geography, oceanography, topography, and climatology will be incorporated.

CREDITS

GENERAL EDUCATION APPLIED ACADEMIC AND TRANSFER COURSES

BIOLOGY

BIOL& 160 General Biology 5
Prerequisite: MATH 098
General Biology is intended to leave the student with an integrated view of the living world. The primary goal of this 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 and/or in self-directed study of relevant biology and biotechnology issues. Course learning involves lectures and labs.

BIOL 170 Medical Terminology–Basic 1
Prerequisite: ENGL 091
This course teaches students the basic design of medical terminology and provides a foundation of knowledge for the language of medicine used in allied health fields.

BIOL 171 Human Anatomy and Physiology 4
In depth study of human body systems emphasizing the relationship between structure and functions as an introductory course for students beginning study in health sciences and related fields. Includes laboratory activities.

BIOL& 175 Human Biology 5
An in- depth study of human body systems emphasizing the relationship between structure and functions. A laboratory course appropriate for students beginning study in health sciences and related programs.

BIOL& 241 Anatomy & Physiology I 5
Prerequisites: BIOL&160 and CHEM&121.
This is 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. Topics include orientation to the human body, cells, tissues, and the following body systems: integument, skeletal, muscle and digestive. How the body works is covered in enough detail that students could explain concepts to others and apply knowledge to novel situations (e.g. make informed decisions regarding their own health and the health of those whom they care about). Some memorization of anatomical structures is required but most of the course focuses on learning for understanding and assessments reflect this emphasis. Lecture and lab exercises cover fundamental principles and establish a basis for advanced study of anatomy and physiology and clinically related subjects in the paramedical fields.

GENERAL EDUCATION (ACADEMICS) COURSE DESCRIPTIONS

CREDITS

BIOL& 242 Anatomy & Physiology II 5
Prerequisite: BIOL&241
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. Topics include the following body systems: nervous, endocrine, cardiovascular, lymphatic, respiratory, urinary and reproductive. How the body works is covered in enough detail that students could explain concepts to others and apply knowledge to novel situations (e.g. make informed decisions regarding their own health and the health of those whom they care about). Some memorization of anatomical structures is required but most of the course focuses on learning for understanding and assessments reflect this emphasis. Lecture and lab exercises cover fundamental principles and establish a basis for advanced study of anatomy and physiology and clinically related subjects in the paramedical fields.

BIOL& 260 Microbiology 5
Prerequisite: MATH 098
Study of microbe structure and classification, organelle function, cellular processes and biochemical reactions, culture requirements and use by humans. In the lab, students learn proper aseptic technique, maintenance of stock bacterial cultures, staining techniques and the use of biochemical tests to identify bacterial unknowns.

NUTR& 101 Intro to Nutrition 5
Prerequisite: MATH 098
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.

BUSINESS

BA 217 Business Communications (WAOL) 5
Prerequisite: ENGL 091
Basic writing skills for business applications including grammar, punctuation, spelling and vocabulary with emphasis on business terminology and usage. Practice skills by writing e-mails, memoranda, various kinds of business letters, and a to-file report. Virtual online access available one week prior to the class start date.

CHEMISTRY

CHEM& 121 Introduction to Chemistry 5
Prerequisite: MATH 098
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 extend lecture concepts and introduce students to the experimental process.

CREDITS

CHEM& 131 Organic Chemistry 5
Prerequisite: CHEM&121
Introduction to organic chemistry and biochemistry includes study of the nomenclature, structure, reactions and synthesis of organic compounds and biochemistry applications in nursing field. Structure and properties of the major classes of organic compounds with particular reference to organic molecules and their relationship to polymers, such as carbohydrates, lipids, proteins, and nucleic acids. 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. Course learning involves lectures and labs.

COMMUNICATIONS

ASL& 121 American Sign Language I 5
An interactive telecourse with VHS tapes exchanged between instructor and student. includes a brief history of ASL, its development, grammatical principles, and vocabulary rules. Vocabulary, finger spelling and sentence structure are developed.

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.

This course fulfills the college requirement for Communication/English here at Bates Technical College while offering generally transferable credits. It is requires a reading- and writing-intensive experience that encourages critical thought and real-life application. It is critical that students commit to attending every single class session.

CMST& 152 Intercultural Communications 5
We live in an era of rapid globalization in which being able to communicate across cultures is imperative in our ability to function in a diverse workplace, city, and world. In this course, students will work towards developing intercultural communication competence. This will be accomplished through classroom exercises, discussions and projects aimed at increasing our sensitivity to other cultures as well as our own cultural backgrounds, and the contexts (social, cultural and historical) in which we live and communicate.

CMST& 210 Interpersonal Communications 5
Prerequisite: ENGL 091
Explores human relations including interpersonal communication effectiveness, giving and receiving criticism non-defensively, building empathy, listening effectively, improving nonverbal awareness, and interviewing successfully.

CREDITS

CMST& 220 Public Speaking 5
Prerequisite: ENGL 091
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.

CMST& 230 Small Group Communications 5
Prerequisite: ENGL 091
Explores human relations including team leadership, conflict management, team dynamics, decision-making, problem solving, and assertiveness strategies. Apply concepts by working in a variety of self-directed problem-solving groups.

ENGLISH

EIS 081 Intensive Grammar I/S 5
For intermediate students of English as a second or foreign language with an emphasis on practical usage and application to prepare students for further developmental general education courses.

EIS 083 Intensive Reading & Writing for International Students 5
An intermediate ESL expository written communication course emphasizing critical thought, reflective reading, and information literacy, with attention to grammar and conventions of standard American English.

EIS 085 Intensive Oral/Aural Skills for International Students 5
Oral and aural abilities emphasizing peer review discussions, notetaking, lecture comprehension and presentation skills to prepare students for further career education or developmental general education courses.

EIS 091 Grammar International Students 5
Prerequisite: EIS 081
For advanced students of English as a second or foreign language with an emphasis on practical usage and application.

EIS 093 Reading and Writing for International Students 5
Prerequisite: EIS 083
An expository written communication course emphasizing critical thought, reflective reading, and information literacy, with attention to grammar and conventions of standard American English.

EIS 095 Oral/Aural for International Students 5
Prerequisite: EIS 085
Oral and aural abilities designed to prepare students for college-level English courses emphasizing peer review discussions, notetaking, lecture comprehension and presentation skills.

General Education Course Descriptions

QTS = Qualifying Test Scores **CREDITS**

ENGL 090 Writing for College 5
Prerequisite: QTS
Critical thinking and composition skills; writing connected paragraphs using correct punctuation, capitalization, usage, spelling, and complex sentence structures.

ENGL 091 Integrated Reading & Writing II 5
Prerequisite: ENGL 090
Competency-based communications course to prepare students for college-level general education. Refinement of reading and critical thinking abilities and development of writing skills for specific purposes and audiences.

ENGL& 101 English Composition I 5
Prerequisite: ENGL 091
An expository written communication course emphasizing critical thought, reflective reading, and information literacy, with attention to rules and conventions of standard American English.

ENGL& 102 Composition II 5
Students study literature and literary criticism in order to develop critical thinking, reading and writing skills beyond the level achieved in English 101, emphasizing logical reasoning, analysis, and strategies of argumentation.

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 communications skills essential in a variety of forms of professional and technical writing. Prerequisites: Completion of ENGL 090 or COMPASS Reading 84 and Writing 76 higher.

ENGL& 235 Technical Writing 5
Prerequisite: ENGL& 101
Advanced written communication for technical and business purposes based on higher level researching of technical information, organizing data, and writing abstracts, studies and detailed business communications. Requires a formal report using prescribed guidelines, including front and back matter.

HISTORY

HIST 101 History of Science and Technology 5
Prerequisite: ENGL 090
Traces the development of western science technology, examines the roles of philosophers, the church, universities, and scientists. Students become aware of the emergence and expanded role of knowledge seeking that occurred as civilizations expanded and became more complex. Focus is on the contributions of common artisans and craftsmen/women whose activities led to important discoveries that became the basis for numerous scientific theories and technological advancements.

CREDITS

HUMAN RELATIONS

HREL 111 College and Self-Promotion Success 5
Prerequisite: ENCL 090
Students are introduced to the principles of communication in the context of successfully interviewing for a job, learning self-promotion with effective reasoning and evidence, to prepare for interviews, to maximize a positive impression through nonverbal communication, the value of building personal credibility, and how to leave a lasting positive impression. Students practice learned skills by participating in interview situations where their performance is critiqued by classmates and the instructor.

MATHEMATICS

AMATH 090 Pre-college Engineering Mathematics 5
This course is a modular web-enhanced progression of mathematical concepts and computation: skills required for success in engineering technology fields of study. Math concepts are taught using a STEM field contextual basis. This course is linked to AMATH 170 in a joint delivery sequence. Students will be promoted to and receive credit for AMATH 170 if they achieve the competency outcomes for the higher course. Successful completion of this course meets the prerequisite for enrolling in AMATH 170 in a subsequent quarter.

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 a STEM field contextual basis. Successful completion of this course is equivalent to completion of intermediate algebra and meets the prerequisite for math courses requiring a MATH 098 prerequisite. PREREQUISITE: MATH 087 or qualifying Compass or CASAS scores equivalent to MATH 092.

MATH 092 Elementary Algebra 5
Prerequisites: Math 087 or QTS
Review of numerical relationship; introduction to elementary algebra concepts, including real numbers, exponents, the order of operations, algebraic expressions, solving algebraic equations, formulas, problem solving, graphing linear equations, rates of change, slopes of lines, functions, scientific notation, and polynomial functions.

CREDITS

MATH 098 Intermediate Algebra 5
Prerequisite: MATH 092 or QTS
Variables, equations, formulas, algebraic expressions, polynomials, exponents, roots, factoring, quadratic equations, algebraic fractions, graphing of linear and quadratic equations, problem solving, and practical exercises using the scientific calculator.

MATH& 141 Pre-calculus I 5
Prerequisite: MATH 098 or QTS
Functions, function operations, rational, polynomial, exponential, logarithmic and linear functions and equation solving, function graphs, matrices and determinants, sequences and series.

MATH& 142 EH Pre-calculus II 5
Prerequisite: MATH 098 or QTS
Right and oblique triangle trigonometry, circular functions, graphs of trigonometric functions, identities, inverse trig functions, vectors and polar coordinates, and parametric equations. TI83 Graphing Calculator required.

MATH& 146 Intro to Stats 5
Prerequisites: MATH 098 or MATH 174 or QTS
Counting rules, probability, mean and standard deviation, graphing, confidence intervals, hypothesis testing and regression analysis. Application in business and technology.

MATH& 151 Calculus I (SG/IS) 5
Prerequisite: MATH& 141 and MATH& 142 or QTS
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.

GENERAL EDUCATION COURSES

General education (academic) courses are designed to provide competence in a variety of learning areas related to career education, and to ensure that all students have a broad, basic education. Areas of study include human relations/leadership, communications and mathematics.

General education courses are required as part of degree and certificate achievement, and are necessary for pursuit of higher-level degrees. (See page 12.)

General Education Course Descriptions

QTS = Qualifying Test Scores CREDITS

MATH 171 Technical Mathematics 5
Prerequisite: MATH 092
Application of linear and quadratic equations, systems of equations, geometry and trigonometry, and vectors and their applications in the technical workplace. Prerequisites: MATH 092 with a grade of 2.0 or higher or COMPASS algebra score of 55. T183 graphing calculator required. This is an applied course applicable to specific AT degrees and certificates of competency. It is not generally transferable.

MATH 172 Applied Math Business Focus 5
Prerequisite: MATH 092
Equation solving, exponents, markup, income tax, compound interest, logarithms and finding time, annuities, amortization and business statistics.

MATH 173 Mathematic Concepts Child Care/Early Education 5
Prerequisite: MATH 092
The conceptual understanding, connections between and the application of math concepts, including number systems and computation, geometry, measurement, data analysis, probability and statistics, and problem solving in ways appropriate for young children.

MATH 174 Math for Allied Health 3
Prerequisites: Completion of Elementary Algebra (MATH 092) with a 2.0 or better or COMPASS Algebra score of 35 or higher. Mathematical concepts for allied health fields including systems of measurement, use of formulas, ratios and proportions in health applications; and basic statistics

PSYCHOLOGY

PSYC& 100 General Psychology 5
Prerequisite: ENGL 091
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.

CREDITS

PSYCH& 200 Lifespan Psychology 5
This course is an introduction to the various stages 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 life span. This course fulfills basic requirements in human development for psychology, nursing, and other related occupations.

SOCIOLOGY

SOC& 101 Introduction to Sociology 5
Prerequisite: ENGL 091
Study of social groups and their structures, processes, institutions, and interactions. Understanding and applying the sociological perspective, stressing the importance of the impact of social forces external to the individual in shaping people's lives and experiences. Virtual online access available one week prior to class start date.

SOC 111 Understanding Diversity 5
Differences and similarities between diverse groups and individuals in our multicultural society and among children, youth, and families. By observing the dynamics of diversity in real life settings, students focus on understanding how cultural differences affect how people interact and communicate and the importance of respecting cultural differences.

CREDITS

ADULT HIGH SCHOOL COMPLETION

Students 18 years of age and older may earn a high school diploma at Bates Technical College by completing high school general education courses, continuing education courses, career education programs, and by receiving credit for work-based and community learning experiences. (See page 11.)

Chapter Six • Reference Guide

Reference Guide

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.

Board of Trustees

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Dental Assistant Certificate, Clover Park Technical College

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AT, Bates Technical College

ALBRIGHT, KAREN
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BS, Graceland College

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BA, The Evergreen State College

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ADN, Yakima Valley College

BELL, LUCIA
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BS, Pacific Lutheran University

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BREWER, DANIEL
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BROCK, KATHLEEN
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BS, City University

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MA, Idaho State University
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Postgraduate Certificate, University of Technology (Sydney)
Certificate of Training, Bates Technical College
M.TESOL, University of Southern Queensland

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BS, Southern Illinois University

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AA, South Puget Sound Community College

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BA, Eastern Washington University
Certificate in Dental Laboratory Technology, Community College of the Air Force
Dental Lab Technology (CDT), national certification

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Chief Operating Engineer certifications: Interburners; Boiler Feed Water Treatment

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Certification: Blackboard Learning Systems Administrator

CUTTING, ARTHUR
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Certified Broadcast Technologist
Certificate, TV/Radio Repair Technician, Bates Technical College

DRIVER, ANGELA
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BA, Ashford University

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BA, Eastern Illinois University

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AAS-T, Bates Technical College

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FRENCH, DAN
Instructor, Commercial Truck Driving

GRAHAM, JUDITH
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MS, Regis University
BA, Saint Martin's University
AA, Pierce College
AAS, Pierce College
Certifications: OCA, Oracle Software

GROW, PAULA
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MS, Western Oregon University
BS, Western Oregon University

GUNTER, ROBERT
Instructor, Commercial Truck Driving
Certifications: City of Tacoma Accident Analysis & Review; City of Tacoma-Fire and Police Special Equipment; AAMVA Instructor for Train the Trainer; Instructor-Fed Ex Ground 40–hr Straight Truck Program

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Counselor
MA, Seattle University

HSU, FRANKLIN
Instructor, Electronic Equipment Service Technician/Biomedical Equipment Service Technician
MS, Southern Illinois University
BS, Southern Illinois University

HUSTON, RICK
Instructor, Welding
AAS-T, Bates Technical College
AT, Bates Technical College
Certifications: Welding Inspector: Welding Educator: AWS Examiner: AWS Test Supervisor; WABO Examiner

JEFFERSON, LEE
Instructor, Diesel and Heavy Equipment

JOHNSON, LANDON
Instructor, Industrial Electronics and Robotics Technician
BS, Marquette University

JONES, MARC
Instructor, Commercial Truck Driving-Entry Level

KAHLER, CHARLES
Instructor, Fire Service Training
AA, Tacoma Community College

KAIS, KENNETH
Instructor, Denturist
DDS, Marquette University
BS, Carroll College

KEITH, MARY ANN
Instructor, Administrative Medical Assistant
MS, Southern Illinois University
BS, Western Washington University
Certificate, Medical Assisting

KNAPP, ROGER
Instructor, Culinary Arts
AA, Culinary Institute of America
Certificate, Culinary Arts, Bates Technical College

KNOX, WILLIAM
Instructor, Welding

LANCASTER, ALICIA
OTA Academic Fieldwork Coordinator
BA, University of South Carolina Upstate
AA, Greenville Technical College

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Instructor, Basic Studies
MA, Pacific Lutheran University
BA, University of Puget Sound
K-12 Washington State Teaching Certificate

LEE, SHEILA
Instructor, Communication Studies and Human Diversity
PhD, Washington State University
MA, Bethel University
BS, University of Minnesota School of Dentistry

LEENHOUTS, DAVID
Instructor, Electrical Construction
AAS-T, Bates Technical College
AT, Bates Technical College
Master Electrician

LEONG, MARCI
Instructor, Hearing Instrument Technology
AuD, University of Florida
MS, University of Washington
BS, University of Washington

LLAPITAN, JEFFERY
Instructor, Electronical Construction
AT, Bates Technical College
Master Electrician

LYON, JOSEPH
Instructor, Heating, Ventilation, Air Conditioning, Refrigeration Technician
BS, Central Washington State
AA, Green River Community College

MACKAY, STEVEN
Instructor, Sheet Metal Technology
BA, National Labor College
AAS-T, Bates Technical College
AT, Bates Technical College
WWSM JATC Apprenticeship Instructor

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Instructor, Child Studies
MA, Lesley University
BA, University of Washington Tacoma

MANN, ROBERT
Instructor, Information Technology, Sumner High School
AAS, Clover Park Technical College

MANTHOU, SANDY
Instructor, Child Studies
AAS, Highline Community College

MARR, PHILIP
Instructor, I-BEST
BS, Linfield College

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Instructor, Culinary Arts
AA, Le Cordon Bleu
Culinary Arts Diploma, Tongue Point Job Corps Center

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Instructor, Automotive Technician, Sumner High School
MA, Antioch University
BA, Humboldt State University

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Instructor, Diesel & Heavy Equipment Mechanic
AT, Pierce College
Certificate and Certifications: Heavy Equipment mechanic Apprenticeship, Bates Technical College; Certificate of Supervision, Pierce College; Heavy Duty Journeyman Mechanic ASE Master Medium/Heavy Truck Technician; Federal/DOT Inspector

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Counselor, Technical High School
MEd, University of Washington
BA, The Evergreen State College
ESA Certification, Saint Martin's University

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Instructor, Child Studies
MS, University of North Dakota
BA, Central Washington University

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Instructor, Dental Lab Technician
BS, Southern Illinois University
AA, Portland Community College
AS, Portland Community College
Certified Dental Technician

MEYER, CURT
Instructor, Mechanical Engineering Technology
MS, University of Nebraska-Lincoln
BS, University of Nebraska-Lincoln

MIN, ANDREW
Instructor, OTA
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MORRIS, CYNTHIA
Instructor, Child Studies
MA, Pacific Oaks College
BA, Pacific Oaks College

NEAL, LYNN
Instructor, Basic Studies
BA, Willamette University
TESOL Certificate, Seattle University

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Instructor, Administrative Office Assistant
MS, University of St. Francis
BS, Southern Illinois University
Certifications: Master MOS Instructor, Certified Administrative Professional

NEWMAN, THOMAS
Instructor, Industrial Electronics and Robotics Technician
BS, University of Puget Sound
AA, Tacoma Community College
Certifications: FANUC Robotics, Rockwell Automation/North Coast Electric, Fluid Power Society, Industrial Training Zone, Apple Computer, ISCET
Journeyman: IBEW, NECA

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Instructor, Welding
Certified Welding Educator, American Welding Society

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Instructor, Practical Nurse
MA, Pepperdine University
BSN, University of Connecticut

OLSON, JEFFERY
Instructor, Barber
Certificate, Barber/Stylist, Bates Technical College; Certified International Guest Artist

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Instructor, Audio/Visual Technology and Communications
BA, University of Puget Sound

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Instructor, Child Studies
MA, Pacific Lutheran University
BA, Saint Martin's University
Certificate, Daycare Specialist, Clover Park Technical College

PAYNTER, DAVID
Instructor, Science
MA, Western Washington University
BA, Pacific Lutheran University

PETERSON, EMMETT
Instructor, Advanced Technologies
Certified Online Instructor
Certified Blended Learning Designer
Certifications: A+, CompTIA; PC Pro, TestOut; MOUS, Microsoft

PIPER, BECKY
Instructor, Practical Nurse
MS, University of Washington Tacoma
BS, University of Washington Tacoma

PIPER, PATRICK
Instructor, Fire Service
BA, Western Oregon University
BA, University of Puget Sound
Certifications: Hazmat Technician; Fire Officer 1; Instructor 1; Rope Rescue Technician; Rescue Systems 1 Instructor; EVAP Instructor; NFPA Incident Safety Officer; Wildland Firefighting Instructor

PREVO, BETH
Instructor, I-BEST
MEd, Seattle University
BA, Lynchburg College

PULIDO, EMILIE
Instructor, General Education
BS, Philippine Normal University

QUINTANA, AMANDA
Instructor, I-BEST
M. Ed., University of Washington
BA, Pacific Lutheran University

RAPKOCH, JOAN
Instructor, Child Studies
MS, University of Oregon
BS, Western Oregon State College

RENNER, TYLER
Instructor, Welding
AT, Bates Technical College

RENO, PATTY
Instructor, Dental Assisting
Certified Dental Assistant

ROBERTSON, LAURA
Instructor, Advanced Technologies
AT, Pierce College
Certifications: FCC, IBEW Journeyman Technician; Advanced Fiber Optic (CFOT/AFOT); Multiple Telecommunications/Cabling Certifications

ROBINSON, ROLAND
Instructor, Audio/Visual Technology and Communications
BA, Eastern Washington University
Certified Television Operator, SBE

ROSE, STEPHEN
Instructor, Machinist
Apprentice, Coventry Precision Engineering

SANFORD, DANIEL
Instructor, Machinist
AT, Bates Technical College

SARTORE, MICHAEL
Instructor, Diesel and Heavy Equipment Mechanic
Heavy Duty Mechanics Certificate, South Seattle Community College

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Instructor, History/Social Studies
Doctoral Candidate, University of Washington
MA, Michigan State University
BA, Albion College
4-12 Washington State Teaching Certificate

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Instructor, Communications
PhD, University of Washington
MA, University of Washington
MAT, University of Puget Sound
BA, Pacific Lutheran University
4-12 Washington State Teaching Certificate

SKEEN, DAVID
Instructor, Advanced Technologies
AT, Bates Technical College
Certified Electronics Technician
ISCET Certification Administrator

SMITH, DANIEL
Instructor, Carpentry
MS, University of Washington Tacoma
BS, Western Washington University

SMITH, INGRID
Instructor, Computer Sciences
Certifications: Comp TIA A+; Network+; CIW Site Designer; CIW Certified Instructor; MOS

SPITZER, MATTHEW
Instructor, Power Sports & Equipment Technology
AAS, Shoreline Community College
ASE Certifications

STANTON, ROBIN
Counselor, Technical High School
BA, Central Washington University

STONE, DIANA
Instructor, Child Studies
MEd, Lesley College
BS, City University
AA, Pierce College

SWARENS, WILLIAM
Instructor, Practical Nurse
MA, Grand Canyon University
BSN, Grant Canyon University

TAYLOR, DARRELL
Instructor, Fire Service
Certifications: Fire Officer I; Fire Instructor I; Fire Inspector I; HazMat Technician; HazMat Incident Commander; EVAP Instructor; Fire Department Pumper Operations Instructor; State Fire Fighter I Evaluator

TORRES, LEXINE
Counselor, Technical High School
BA, Eastern Washington University

TRAUFLER, ROBERT
Career Advisor
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Instructor, Facilities Maintenance Engineer
MEd, Educational Leadership, City University
BA, University of Washington
AT, Bates Technical College
Certifications: Steam Engineer Grade 1, City of Seattle; Class 1 Chief Operating Engineer, City of Tacoma

WARD, MARY
Instructor, General Education
BA, University of Puget Sound

WEBB, LISA
Instructor, Early Childhood Education
BA, Evergreen State College
AA, Tacoma Community College
AT, Bates Technical College

WESTPHAL, WADE
Instructor, Commercial Truck Driving
Certifications: Commercial Vehicle Safety Alliance; Federal Motor Carrier Safety Administrator; Washington Safety Council; Traffic Safety; Driver Training for Public Services; CDL Examiner; American Association of Motor Vehicle Administrators

WILLIAMS, LEE
Military Veterans Advisor
MS, University of Arkansas
BS, Embry Riddle Aeronautical University
Certified Project Manager, George Washington University; Microsoft Certified Systems Engineer

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Instructor, Audio/Visual Technology and Communications
AA, Marshalltown Community College

WOOD, MICHAEL
Librarian
MS, University of Washington
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Instructor, Auto Body Rebuilding & Refinishing
ASE Collision Repair Technician
ASE Refinishing Technician

YOUNG, BARRY
Instructor, Machinist
Puget Sound Chapter National Tooling & Machining Association
Advanced Locksmithing, Foley-Belsaw Institute, Comp TIA, Lightpoint Learning Solutions, Journeyman Certification, Machinist Certificate of Training US Air Force

YOUNG, EDWARD
Instructor, Mathematics/Science/Social Studies
BS, Embry Riddle Aeronautical University
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