

Sheet Metal Technology

Program Description:

Bates offers the only program in the region that prepares students for apprenticeship employment in the sheet metal industry. Customer projects completed in the classroom, shop, and the field, provide students with the necessary foundational skills to succeed in this high demand and rewarding occupation. Instruction includes equipment operation, fabrication and installation of various ventilation systems, blueprint reading, computer-aided drafting, air distribution, and material handling. This is a pre-apprenticeship program for the Western Washington Sheet Metal Joint Apprenticeship Training Committee. Students who complete all required elements of the selected Sheet Metal Technology course offerings will be awarded direct entry into the Western Washington Sheet Metal JATC Local 66 building trades 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.

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

Program Learning Outcomes:

1. Lay out, measure, and mark dimensions and reference lines on material
2. Use calculators, scribes, dividers, squares, and rulers
3. Fasten joints together with a variety of fasteners
4. Install a variety of assemblies: flashings, heating and air conditioning ducts, and furnace casings
5. Interpret blueprints relating to construction sites
6. Perform basic computer functions
7. Use shears, hammers, punches, or drills to fabricate or modify parts
8. Identify gauge types of sheet metal or nonmetallic materials
9. Install section components
10. Drill and punch holes in metal for screws, bolts, and rivets
11. Develop positive interpersonal abilities to create a team environment in the workplace
12. Work independently as well as cooperatively in a sheet metal shop environment
13. Identify commonly used hand tools and machines for sheet metal fabrication
14. Interpret guidelines set forth by OSHA/WISHA/HAZ COM and occupation standards
15. Use calculators, hand tools and machines on sheet metal or paper for fabrication
16. Install a variety of components including outdoor metal flashings, gutters, and siding
17. Perform basic computer functions relating to duct design and CAD fabrication
18. Install a variety of components including HVAC ductwork, piping and equipment

Sheet Metal Technology AAS (115 credits)

Required Courses

SHME101	Introduction to Sheet Metal Technology	3
SHME103	Fitting Fabrication I	7
SHME105	Materials Technology	3

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SHME150	Hand Tools and Machines	5
SHME107	Applied Math	5
SHME151	Safety and Health	4
SHME152	Drafting I	6
SHME217	Energy Codes	2
SHME112	Fitting Fabrication II	8
SHME153	Architectural Sheet Metal	5
SHME203	Blueprint Reading Applications	5
SHME206	Complex Components Fabrication	5
SHME250	Drafting II	7
SHME213	Introduction to Blueprint Reading	4
SHME251	Duct Design and Air Balancing Concepts	5
SHME252	Field Installation I	6
SHME253	Field Installation II	6
SHME254	Commercial Projects	6
WBAS101	Welding Basics	8

General Education Requirements

Communications 5 credits required

ENGL175

ENGL&101 ENGLISH COMPOSITION I

Humanities/Social Sciences/Natural Sciences/Other 5 credits required

BIOL&160 GENERAL BIOLOGY

BIOL&175 HUMAN BIOLOGY WITH LAB

BIOL&241 ANATOMY & PHYSIOLOGY I

BIOL&242 HUMAN A&P II

BIOL&260 MICROBIOLOGY

CHEM&121 INTRODUCTION CHEMISTRY

CHEM&131 INTRODUCTION TO ORGANIC/BIOCHEMISTRY

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CMST&102	INTRO TO MASS MEDIA
CMST&152	INTERCULTURAL COMMUNICATION
CMST&210	INTERPERSONAL COMMUNICATION
CMST&220	PUBLIC SPEAKING
ECON&201	MICROECONOMICS
NUTR&101	INTRO TO NUTRITION
POLS&101	INTRO TO POLITICAL SCIENCE
PSYC&100	GENERAL PSYCHOLOGY
PSYC&200	LIFESPAN PSYCHOLOGY
SOC&101	INTRO TO SOCIOLOGY

Quantitative

5 credits required

MATH172	APPLIED BUSINESS MATH
MATH&141	PRECALCULUS I
MATH&142	PRECALCULUS II
MATH&146	INTRODUCTION TO STATISTICS
MATH&151	CALUCLUS I
MATH&152	CALCULUS II

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

Sheet Metal Technology Certificate of Completion (115 credits)

Required Courses

SHME101	Introduction to Sheet Metal Technology	3
SHME103	Fitting Fabrication I	7
SHME105	Materials Technology	3
SHME150	Hand Tools and Machines	5
SHME107	Applied Math	5
SHME151	Safety and Health	4
SHME152	Drafting I	6

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SHME217	Energy Codes	2
SHME112	Fitting Fabrication II	8
SHME153	Architectural Sheet Metal	5
SHME203	Blueprint Reading Applications	5
SHME206	Complex Components Fabrication	5
SHME250	Drafting II	7
SHME213	Introduction to Blueprint Reading	4
SHME251	Duct Design and Air Balancing Concepts	
SHME252	Field Installation I	6
SHME253	Field Installation II	6
SHME254	Commercial Projects	6
WBAS101	Welding Basics	8

General Education Requirements

Communications 5 credits required

ENGL175

ENGL&101 ENGLISH COMPOSITION I

Humanities/Social Sciences/Natural Sciences/Other 5 credits required

BIOL&160 GENERAL BIOLOGY

BIOL&175 HUMAN BIOLOGY WITH LAB

BIOL&241 ANATOMY & PHYSIOLOGY I

BIOL&242 HUMAN A&P II

BIOL&260 MICROBIOLOGY

CHEM&121 INTRODUCTION CHEMISTRY

CHEM&131 INTRODUCTION TO ORGANIC/BIOCHEMISTRY

CMST&102 INTRO TO MASS MEDIA

CMST&152 INTERCULTURAL COMMUNICATION

CMST&210 INTERPERSONAL COMMUNICATION

CMST&220 PUBLIC SPEAKING

ECON&201 MICROECONOMICS

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NUTR&101	INTRO TO NUTRITION
POLS&101	INTRO TO POLITICAL SCIENCE
PSYC&100	GENERAL PSYCHOLOGY
PSYC&200	LIFESPAN PSYCHOLOGY
SOC&101	INTRO TO SOCIOLOGY

Quantitative

5 credits required

MATH172	APPLIED BUSINESS MATH
MATH&141	PRECALCULUS I
MATH&142	PRECALCULUS II
MATH&146	INTRODUCTION TO STATISTICS
MATH&151	CALUCLUS I
MATH&152	CALCULUS II

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

Sheet Metal Technician Certificate of Completion (98 credits) Previously listed as 93 credits

Required Courses

SHME101	Introduction to Sheet Metal Technology	3
SHME103	Fitting Fabrication I	7
SHME105	Materials Technology	3
SHME150	Hand Tools and Machines	5
SHME107	Applied Math	5
SHME151	Safety and Health	4
SHME152	Drafting I	6
SHME217	Energy Codes	2
SHME112	Fitting Fabrication II	8
SHME153	Architectural Sheet Metal	5
SHME203	Blueprint Reading Applications	5
SHME250	Drafting II	7

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SHME213	Introduction to Blueprint Reading	4
SHME251	Duct Design & Air Balancing Concepts	5
SHME252	Field Installation I	6
WBAS101	Welding Basics	8

General Education Requirements

Communications 5 credits required

ENGL175
ENGL&101 ENGLISH COMPOSITION I

Humanities/Social Sciences/Natural Sciences/Other 5 credits required

BIOL&160 GENERAL BIOLOGY
BIOL&175 HUMAN BIOLOGY WITH LAB
BIOL&241 ANATOMY & PHYSIOLOGY I
BIOL&242 HUMAN A&P II
BIOL&260 MICROBIOLOGY
CHEM&121 INTRODUCTION CHEMISTRY
CHEM&131 INTRODUCTION TO ORGANIC/BIOCHEMISTRY
CMST&102 INTRO TO MASS MEDIA
CMST&152 INTERCULTURAL COMMUNICATION
CMST&210 INTERPERSONAL COMMUNICATION
CMST&220 PUBLIC SPEAKING
ECON&201 MICROECONOMICS
NUTR&101 INTRO TO NUTRITION
POLS&101 INTRO TO POLITICAL SCIENCE
PSYC&100 GENERAL PSYCHOLOGY
PSYC&200 LIFESPAN PSYCHOLOGY
SOC&101 INTRO TO SOCIOLOGY

Quantitative 5 credits required

MATH172 APPLIED BUSINESS MATH
MATH&141 PRECALCULUS I

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MATH&142	PRECALCULUS II
MATH&146	INTRODUCTION TO STATISTICS
MATH&151	CALUCLUS I
MATH&152	CALCULUS II

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

Sheet Metal Production Support Certificate of Training (44 credits)

Required Courses

SHME103	Fitting Fabrication I	7
SHME105	Materials Technology	3
SHME150	Hand Tools and Machines	5
SHME107	Applied Math	5
SHME217	Energy Codes	2
SHME112	Fitting Fabrication II	8
SHME253	Field Installation II	6
WBAS101	Welding Basics	8

Sheet Metal Residential Installer Certificate of Training (44 credits) Previously listed as 46

Required Courses:

SHME150	Hand Tools and Machines	5
SHME253	Field Installation II	6
SHME120	Introduction to Sheet Metal Technology	3
SHME124	Fitting Fabrication	4
SHME125	Applied Math	5
SHME127	Prefabricated Components	2
SHME128	Materials Handling Technology	
SHME129	Wood working Tools	1
SHME130	Carpentry Installation	3

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SHME131	Air Properties Technology	1
SHME132	Duct Installation	3
SHME133	Residential Venting Technology	2
SHME134	Unit Operations	2
SHME135	Code Principals	2
SHME136	Gas Pipping Technology	2
SHME137	Duct Design Technology	3
SHME138	Preventive Maintenance	2