

Facilities Maintenance Engineer

Program Description:

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.

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

Program Learning Outcomes:

1. Maintain, diagnose and repair conventional building technologies and systems: wiring, heating, cooling, plumbing and ventilation systems
2. Repair and maintain basic electrical fixtures
3. Operate common hand tools, electrical test equipment and power tools used in the maintenance trade in a safe and efficient manner
4. Identify National Electrical Code standards, recommended practices and guides for commercial and industrial building electrical distribution
5. Perform basic welding repairs
6. Measure, calculate and estimate needed supplies and costs
7. Read and interpret basic blueprints, shop drawings and electrical schematics
8. Apply safety procedures when using maintenance tools
9. Follow fire prevention practices

Facilities Maintenance Engineer AAS (120-124 credits) previously listed as 117 credits

Required Courses

Quarter 1	FACM101	Safety Principles	2 (changed from 3 credits)
	FACM102	Fundamentals of Electricity	3
	FACM103	Electrical Service	4
	FACM104	Introduction to Blueprint Reading	5
	FACM105	Engineering Drawings	4
Quarter 2	FACM106	Introduction to Hydraulics/Pneumatics	5
	FACM107	Machine Components	5

	FACM108	Mechanical and Machine Maintenance	5
	FACM109	Tools and Equipment	5
Quarter 3	FACM111	Building Maint. and Repair Methods	5
	FACM113	Introduction to Building Maintenance	3
	FACM121	Grounds Keeping	5
	FACM222	Introduction to Remodeling	4
Quarter 4	FACM112	Basic Refrigeration	4 (not previously listed)
		or	
	FACM292	Independent Project I	5 (previously listed as elective)
		or	
	FACM293	Independent Project II	5 (previously listed as elective)
	FACM122	HVAC Systems	4
	FACM221	Small Business Planning	3
	FACM230	Computers in Industry	2
	FACM231	Computer Applications	4
Quarter 5	FACM140	Boiler Operations and Certifications	12
	FACM144	Advanced Boiler Operations	5
Quarter 6	FACM143	Advanced Projects	3
	WBAS101	Welding Basics	8
	FACM296	Work-Based Learning Experience I	1-13 (cr. not previously listed)
		or	
	FACM297	Work-Based Learning Experience II	1-13 (cr. not previously listed)

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
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.

**Building/Care Maintenance Certificate of Competence (68 credits)
previously listed as 69 credits**

Required Courses

Quarter 1	FACM101	Safety Principles	2 (changed from 3 credits)
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	FACM102	Fundamentals of Electricity	3
	FACM103	Electrical Service	4
	FACM104	Introduction to Blueprint Reading	5
	FACM105	Engineering Drawings	4
Quarter 2	FACM106	Introduction to Hydraulics/Pneumatics	5
	FACM107	Machine Components	5
	FACM108	Mechanical and Machine Maintenance	5
	FACM109	Tools and Equipment	3
Quarter 3	FACM111	Building Maint and Repair Methods	5
	FACM113	Introduction to Building Maintenance	3
	FACM121	Grounds Keeping	5
	FACM222	Introduction to Remodeling	4

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
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.

Building/Care Maintenance I Certificate of Training (18 credits) previously listed as 19 credits

Required Courses

FACM101	Safety Principles	2 (changed from 3 credits)
FACM102	Fundamentals of Electricity	3
FACM103	Electrical Service	4
FACM104	Introduction to Blueprint Reading	5
FACM105	Engineering Drawings	4

Maintenance Technician I Certificate of Training (18 credits)

Required Courses

FACM106	Introduction to Hydraulics/Pneumatics	5
FACM107	Machine Components	5
FACM108	Mechanical and Machine Maintenance	5
FACM109	Tools and Equipment	3

Building/Care Maintenance II Certificate of Training (17 credits)

Required Courses

FACM111	Building Maint and Repair Methods	5
FACM113	Introduction to Building Maintenance	3
FACM121	Grounds Keeping	5
FACM222	Introduction to Remodeling	4

Maintenance Technician II Certificate of Training (17 credits)

Required Courses

FACM112	Basic Refrigeration	4
FACM122	HVAC Systems	4
FACM221	Small Business Planning	3
FACM230	Computers in Industry	2
FACM231	Computer Applications	4

Boiler Operations Certificate of Training (17 credits)

Required Courses

FACM140	Boiler Operations and Certifications	12
FACM144	Advanced Boiler Operations	5