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

<table>
<thead>
<tr>
<th>Quarter 1</th>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tr>
<td></td>
<td>F ACM101</td>
<td>Safety Principles</td>
<td>2</td>
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<tr>
<td></td>
<td>F ACM102</td>
<td>Fundamentals of Electricity</td>
<td>3</td>
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<td></td>
<td>F ACM103</td>
<td>Electrical Service</td>
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<td></td>
<td>F ACM104</td>
<td>Introduction to Blueprint Reading</td>
<td>5</td>
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<td></td>
<td>F ACM105</td>
<td>Engineering Drawings</td>
<td>4</td>
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<td>Quarter 2</td>
<td>F ACM106</td>
<td>Introduction to Hydraulics/Pneumatics</td>
<td>5</td>
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<tr>
<td></td>
<td>F ACM107</td>
<td>Machine Components</td>
<td>5</td>
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</tbody>
</table>
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
POL&S&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  CALCULUS 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)
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  CALCULUS 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