

Contact: Kristin Bauer

**REGENT MERIT SYSTEM CLASSIFICATION UPDATE – ENVIRONMENTAL SYSTEMS
MECHANIC SERIES**

Action Requested: Approve the revised classification job description and pay grades for the Regent Merit System Classification Plan Environmental Systems Mechanic I, II, and III as outlined in Attachment A.

Executive Summary: The Environmental System Mechanic classifications were last reviewed in 2014, since then the roles and responsibilities of the classification series have grown and changed exponentially. The proposed duties and responsibilities have been updated to more accurately reflect the duties the Environmental Systems Mechanics are now performing. The changes reflected will align staff more appropriately and provide the institutions an ability to recruit and retain individuals with the necessary skillsets.

**BOARD OF REGENTS
STATE OF IOWA
REGENT MERIT
SYSTEM**

Class Title: Environmental Systems Mechanic I

Class Code: 5090

Pay Grade: ~~210~~ 211

GENERAL CLASS DESCRIPTION:

Under direct supervision, performs skilled work in the area of installation, repair, alteration, replacement and maintenance of components of refrigeration, air conditioning and heating (all fuel types) equipment.

CHARACTERISTIC DUTIES AND RESPONSIBILITIES:

1. Installs and maintains air-moving, heating, cooling, humidification and filtering equipment and systems such as fans, heat pumps, gas unit heaters, forced air equipment, furnaces, radiant heating, condensers, compressors, pumps, fan coil units, rooftop package air conditioning units, computer room cooling units, etc.
2. Installs and maintains various styles and types of refrigeration equipment and systems.
3. Installs and maintains equipment related to heating and cooling, such as air compressors, air dryers and associated non-automated controls.
4. Tests and evaluates performance of air-moving, heating, cooling, humidification and filtering equipment such as fans, heat pumps, forced air, radiant heating, condensers, compressors, pumps, fan coil units, rooftop package air conditioning units, computer room cooling units, etc. using specialized equipment; repairs or replaces defective valves, thermostats and other parts.
5. Reads and interprets blueprints, schematics and other drawings, diagrams and specifications.
6. Prepares records and service reports.
7. Uses chain falls, hoists and chokers to safely lift large heavy components into position.

8. Provides guidance to apprentices and/or students as required.
9. Other duties as assigned by appropriate department or administrative personnel.

The tasks listed under the heading of Characteristic Duties and Responsibilities are examples of the variety and general nature of duties performed by employees in positions allocated in the class. The list is descriptive only and should be used for no other purpose. It is not intended that any position include every duty listed nor is it intended that related duties cannot be required.

KNOWLEDGE, SKILL, AND ABILITIES:

1. Knowledge of the principles of operations, methods, materials and tools utilized in the installation, troubleshooting, maintenance, calibration and repair of air-moving, heating, cooling, humidification and filtering equipment and systems such as fans, heat pumps, gas unit heaters, forced air equipment, furnaces, radiant heating, condensers, compressors, pumps, fan coil units, rooftop package air conditioning units, computer room cooling units, etc.
2. Ability to properly braze refrigeration tubing and connections.
3. Knowledge of occupational hazards and safety precautions mandated by the Occupational Safety and Health Administration, National Fire Prevention Association, National Fire Code and the Environmental Protection Agency, etc.
4. Knowledge, skill and ability to evaluate equipment for either repair or replacement and determine the amount of time and materials necessary to accomplish the task with least downtime of equipment.
5. Ability to interpret blueprints, diagrams and equipment specifications.
6. Knowledge of proper bending and lifting techniques.
7. Skill in the proper use and care of hand and power tools and test equipment.
8. Ability to work in areas of high heat, dust and noise and in confined spaces or on a ladder.
9. Ability to work independently during the normal workday and in an on-call status.
10. Ability to communicate effectively orally and in writing.
11. Ability to work in all types of environmental conditions or in areas where there is exposure to excessive noise, dirt, and fumes and at elevated heights from ladders, scaffolds, or hydraulic lifts.
12. Ability to work independently during normal work hours and after hours.

13. Basic Computer Skills

MINIMUM ELIGIBILITY REQUIREMENTS:

1. Four years of experience in refrigeration, heating or air conditioning work, including apprenticeship; and
2. ~~Has refrigeration certificate of at least type 2.~~ Obtains refrigeration certificate of at least type 2 within first six months of employment.
3. ~~Must~~ May need to possess a valid driver's license and meet University's Fleet Safety Program.

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REVISION EFFECTIVE: ~~July 1, 2014~~ August 1, 2021

**BOARD OF REGENTS
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SYSTEM**

Class Title: Environmental Systems Mechanic II

Class Code: 5091

Pay Grade: 212 213

GENERAL CLASS DESCRIPTION:

Under general supervision, performs skilled work in the area of installation, repair, alteration, replacement and maintenance of components of environmental systems such as refrigeration, temperature control and heating (all fuel types) and support systems. Utilizes computerized building environmental automation systems to collect mechanical system performance data to ensure system reliability.

CHARACTERISTIC DUTIES AND RESPONSIBILITIES:

1. Performs all duties listed under Environmental Systems Mechanic I.
2. Installs and maintains environmental systems equipment and components such as air conditioning equipment, chillers, condensers, pumps, fume hoods, autoclaves, environmental chambers, scientific equipment, cascade cooling units, process water systems, compressors and other pneumatic and computerized controls. Installs and maintains cooling tower equipment, plate-frame heat exchangers, cooling water treatment equipment, heating systems (all fuel types) to include boilers, unit heaters, furnaces, radiant heating, heat pump systems (geothermal and air source), variable frequency drives, and other emerging technology equipment/systems.
3. Tests and evaluates performance of systems using specialized equipment, repairs or replaces defective valves, thermostats, sensor and other parts in both pneumatic and computerized building environmental automation systems.
4. Operates computerized building environmental automation systems that control heating and cooling systems.
5. Performs continuous commissioning and retro commissioning of various types of environmental equipment to assure these systems are meeting energy optimization efficiency goals, operating to desired baselines, and are meeting the expectations of the customer.

6. Utilizes energy monitoring devices and test equipment to establish predictive type maintenance repairs that extend the life of systems and eliminate out of service conditions.

The tasks listed under the heading of Characteristic Duties and Responsibilities are examples of the variety and general nature of duties performed by employees in positions allocated in the class. The list is descriptive only and should be used for no other purpose. It is not intended that any position include every duty listed nor is it intended that related duties cannot be required.

7. Provides functional guidance and training to apprentices, replacements, students and other personnel as required.
8. Other duties as assigned by appropriate department or administrative personnel.

KNOWLEDGE, SKILL, AND ABILITIES:

1. Knowledge of the principles of operations, methods, materials, and tools utilized in the installation, troubleshooting, maintenance, calibration and repair of environmental systems.
2. Ability to properly braze refrigeration tubing and connections.
3. Knowledge of occupational hazards and safety precautions mandated by the Occupational Safety and Health Administration, National Fire Prevention Association, National Fire Code, the Environmental Protection Agency, etc.
4. Knowledge, skill and ability to evaluate and recommend equipment for either installation, repair, or replacement and determine the amount of time and materials necessary to accomplish the task with least expense and downtime of equipment.
5. Knowledge of computerized building environmental automation systems and ability to collect data for mechanical system performance.
6. Skill in the proper use and care of hand and power tools and test equipment.
7. Knowledge of proper bending and lifting techniques.
8. Ability to work in areas of high heat, dust and noise and in confined spaces or on a ladder.
9. Ability to interpret blueprints, diagrams and equipment specifications.
10. Ability to work independently during the normal workday and in an on-call status.
11. Ability to communicate effectively orally and in writing.
12. Ability to work in all types of environmental conditions or in areas where there is

exposure to excessive noise, dirt, and fumes and at elevated heights from ladders, scaffolds, or hydraulic lifts.

13. Ability to work independently during normal work hours and after hours.
14. Knowledgeable of the operation and maintenance of variable frequency drives.
15. Knowledge of chilled water systems and maintenance requirements.
16. Knowledge of steam system operation and maintenances.

MINIMUM ELIGIBILITY REQUIREMENTS:

1. Six years of experience in temperature and computerized building environmental automation systems, refrigeration or air conditioning work, including apprenticeship, or has two years of experience in computerized building environmental automation systems and meets the minimum eligibility requirements of ESM I; or four years experience in above plus Journeyman's license; and
2. Has refrigeration certificate of at least type 2.
3. Must May need to possess a valid driver's license and meet University's Fleet Safety Program.
4. Prefer 2 years of college/trade school.

**BOARD OF REGENTS
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SYSTEM**

Class Title: Environmental Systems Mechanic III

Class Code: 5093

Pay Grade: ~~213~~ 215

GENERAL CLASS DESCRIPTION:

Performs skilled work in the area of installation, repair, alteration, replacement and maintenance of components of environmental systems such as refrigeration, temperature control, chillers, heating (all fuel types) systems to include other support systems and emerging technology equipment. Utilizes computerized control systems to collect, analyze and modify mechanical system performance to ensure system reliability and system optimization.

CHARACTERISTIC DUTIES AND RESPONSIBILITIES:

1. Performs all duties listed under Environmental Systems Mechanic I and II.
2. Operates, inspects, maintains and repairs chillers, chilled water equipment and systems to include associated auxiliary equipment such as air compressors, air dryers, pumps, chiller tube bundles, heat exchangers, and other emerging technology equipment and systems.
3. Perform leak tests, transfer refrigerants, charge machines and otherwise handle Freon refrigerants according to EPA regulations.
4. Conducts a variety of audible, visual and mechanical tests, uses computerized building environmental automation systems, records and service reports and other tools to diagnose and recommend system modifications to improve equipment and system performance.
5. Modifies building automation systems that control heating and cooling systems.
6. Provides functional guidance and training to apprentices, replacements, students and other personnel as required.
7. Investigates methods and equipment to be used in computerized building environmental automation systems and makes recommendations to engineers.

8. Other duties as assigned by appropriate department or administrative personnel.

The tasks listed under the heading of Characteristic Duties and Responsibilities are examples of the variety and general nature of duties performed by employees in positions allocated in the class. The list is descriptive only and should be used for no other purpose. It is not intended that any position include every duty listed nor is it intended that related duties cannot be required.

KNOWLEDGE, SKILL, AND ABILITIES:

1. Knowledge, skills and abilities listed under ESM I and ESM II classifications.
2. Knowledge of the principles of operations, methods, materials, and tools utilized in the installation, troubleshooting, maintenance, calibration and repair of environmental systems. Skill and ability to utilize data to make recommendations and modifications to improve and optimize system performance.
3. Knowledge of computerized building environmental automation systems and ability to collect, analyze and modify system performance through the systems.
4. ~~Knowledge of chilled water system operation and maintenance requirements~~ Ability to operate, inspect, maintain, and repair chilled water systems.
5. Ability to operate, inspect, maintain, and repair variable frequency drives.
6. Ability to collect data and provide technical recommendations consistent with institutional energy goals.
7. Ability to work in all types of environmental conditions or in areas where there is exposure to excessive noise, dirt, and fumes and at elevated heights from ladders, scaffolds, or hydraulic lifts.
8. Ability to work independently during normal work hours and after hours.

MINIMUM ELIGIBILITY REQUIREMENTS:

1. Eight years of experience in computerized building environmental automation systems, refrigeration or air conditioning work, including apprenticeship, with two years of experience in evaluating and recommending system optimization changes, or two years of experience in evaluating and recommending system optimization changes and meets the minimum eligibility requirements of ESM II; and
2. Has refrigeration certificate of at least type 2.
3. ~~Must~~ May need to possess a valid driver's license and meet University's Fleet Safety Program.
4. Journeyman license required.

5. Prefer 2 years of college/trade school.

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REVISION EFFECTIVE: ~~July 1, 2014~~ August 1, 2021