### Refrigeration & Heating (RH)

#### Courses

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**Prerequisites:**

- RH A109 for RH A126.
- RH A101 and RH A105 for RH A122.
- RH A109 for RH A221.
- RH A109 for RH A228.
- RH A203 for RH A229.

#### RH A101 Refrigeration and Air Conditioning Fundamentals 4 Credits
Explores compressors, condensers, evaporators, metering devices and related components. Offers instruction in the proper use of tools and testing devices applicable to the refrigeration and air-conditioning trades and experimentation with refrigeration system training devices. Provides instruction and experience on piping layout and assembly. Provides students with practice at swaging, flaring, bending, soldering and brazing. Includes instruction on the design, construction, troubleshooting, service and repair of household refrigerators and freezers.

**Prerequisites:** RH A101 and RH A105 and RH A129.

#### RH A201 Commercial and Ammonia Refrigeration 4 Credits
Covers commercial refrigeration systems, including ammonia refrigeration, CO2 refrigeration, components unique to commercial and industrial refrigeration, ice makers and ice making equipment, grocery store display cases, compressor racks, defrost methods, lubrication systems and oil return, effects of system contaminants, and pipe sizing. Introduces the safe startup and operation of a liquid overfeed ammonia refrigeration system.

**Prerequisites:** RH A122 and RH A126.

#### RH A203 HVAC/R Basic Controls 3 Credits
Introduces concepts and components of basic residential and commercial heating and cooling control applications. Explores primary burner controls for forced air and hydronic control systems. Lab projects give practical application to the knowledge covered in the course.

**Prerequisites:** RH A126 and RH A132.

#### RH A209 Codes for HVAC/R 2 Credits
Introduces current mechanical codes as adopted by the State of Alaska and covers sections of the International Mechanical Code related to general heating, ventilation, and air conditioning work.

#### RH A211 Customer Relations and Job Etiquette 1 Credit
Explores methods, protocols, and techniques for building and maintaining positive relationships with customers. Identifies a variety of characteristics and related behaviors required of a successful and productive HVAC/R technician.

#### RH A225 Heating Fundamentals and Forced Air Heat 4 Credits
Introduces knowledge and skills needed for the installation and service of forced air heating systems. Covers beginning maintenance and installation to advanced troubleshooting of heating systems.

**Prerequisites:** RH A109.

#### RH A226 Commercial HVAC/R Systems 4 Credits
Introduces commercial heating, ventilation, and air conditioning systems by category and application. Includes both air-side and water-side systems, along with humidification, ventilation, and air filtration requirements.

**Prerequisites:** RH A225.

#### RH A228 Advanced Hydronic Heat Systems 4 Credits
Explores hydronic heating sources and emitters. Covers residential and light commercial boilers and hydronic heating systems. Includes radiant panel heating, emphasizing wiring and troubleshooting of hydronic controls.

**Prerequisites:** RH A225.

#### RH A229 HVAC/R Control Systems 3 Credits
Surveys heating, ventilation, and air conditioning control systems and control theory. Topics will include pneumatic, electronic, and direct digital control (DDC) systems.

**Prerequisites:** RH A203.
**RH A232 HVAC/R Sheet Metal 3 Credits**

**RH A290 Selected Topics in Refrigeration and Heating 1-3 Credits**
Covers topics in heating, ventilating, air conditioning, and refrigeration (HVAC/R) such as theory, problem solving, system operation, economic analysis, specialized applications, and performance optimization.

**Special Note:** May be repeated up to 6 credits with change of subtitle.