REFRIGERATION & HEATING TECHNOLOGY

Four Occupational Endorsement Certificates, one Undergraduate Certificate, and an Associate of Applied Science degree in Refrigeration and Heating are available. Satisfactory completion of the four specialty certificates will qualify a student for the Undergraduate Certificate in Refrigeration and Heating Technology. The A.A.S. degree may be earned by obtaining the Undergraduate Certificate in Refrigeration and Heating Technology and successfully completing the General University and General Course Requirements for an Associate degree. A student satisfactorily completing the requirements for a certificate or the degree will possess a background in heating, air-conditioning, applied physics, mathematics, electricity, and the technical skills required to diagnose and repair modern commercial and residential heating, refrigeration, air-conditioning, and ventilation systems.

All students enrolling in the R&H program must take a standardized placement test in reading, writing, and mathematics. The faculty place heavy emphasis on student preparation for job entry-level skills. Professional tests related to the industry are administered as part of this program. If possible, additional training may take place on the job to provide a student with work related experience. Students must successfully pass all of the classes listed in the Core Requirements module before attempting any of the specialty certificate courses.

The Refrigeration and Heating Technology program is offered only through Matanuska-Susitna College.

PROGRAM OBJECTIVES AND EXPECTED OUTCOMES

The curriculum of the Matanuska-Susitna College Refrigeration and Heating Program is designed to produce graduates able to:

2. Use mathematical skills required to succeed in HVAC/R trades.
3. Understand and describe the function of individual components that make up HVAC/R systems.
4. Work safely with tools, torches, electricity, refrigerants, heating fuels, and other equipment and material associated with HVAC/R work.
5. Follow work practices that are environmentally responsible.
6. Obtain employment as an entry level HVAC/R technician and be able to advance professionally.
7. Work effectively with customers, employers, and co-workers.
8. Systematically troubleshoot HVAC/R systems.
9. Apply municipal, state, and national mechanical codes to decisions involving the design, installation, operation and maintenance of HVAC/R systems.

□ OCCUPATIONAL ENDORSEMENT CERTIFICATES

ADMISSION

Satisfy the admissions requirements for Occupational Endorsement Certificates in Chapter 6 of this Catalog. Students must achieve an acceptable score on placement tests in Reading, Writing and Mathematics.

ADVISING

Students are urged to meet with a faculty advisor prior to enrollment in RH classes.

ACADEMIC PROGRESS

Prerequisites: Certain courses require prerequisites or faculty permission.

Students must pass all courses listed in Core Requirements before attempting any of the specialty courses.

CERTIFICATE REQUIREMENTS

Students seeking an R&H certificate must complete the following core requirements.

□ CORE REQUIREMENTS (12 credits):
  RH A103 Technical Math for Industrial Trades (3)
  RH A105 Electrical Circuits for R & H I (3)
  RH A109 Principles of Thermodynamics (3)
  RH A209 Codes for HVAC/R (2)
  RH A211 Customer Relations & Job Etiquette (1)

□ RESIDENTIAL AND LIGHT COMMERCIAL HEATING & VENTILATION

1. Complete the Core Requirements
2. Complete the following certificate requirements (11 credits):
   RH A203 HVAC/R Basic Controls (3)
   RH A225 Heating Fundamentals & Forced Air Heat (4)
   RH A228 Advanced Hydronic Heat Systems (4)
3. A total of 23 credits is required for the Occupational Endorsement Certificate.

□ COMMERCIAL HVAC SYSTEMS

1. Complete the Core Requirements
2. Complete the following certificate requirements (10 credits):
   RH A226 Commercial HVAC/R Systems (4)
   RH A229 HVAC/R Control Systems (3)
   RH A232 HVAC/R Sheet Metal (3)
3. A total of 22 credits is required for the Occupational Endorsement Certificate.

□ RESIDENTIAL AND LIGHT COMMERCIAL AIR-CONDITIONING AND REFRIGERATION

1. Complete the Core Requirements
2. Complete the following certificate requirements (10 credits):
   RH A101 Refrigeration & Air-Conditioning Fundamentals (4)
   RH A126 Electrical Circuits for R & H II (3)
   RH A132 Troubleshooting HVAC/R Systems (3)
3. A total of 22 credits is required for the Occupational Endorsement Certificate.

□ COMMERCIAL REFRIGERATION SYSTEMS

1. Complete the Core Requirements
2. Complete the following certificate requirements (12 credits):
   RH A101 Refrigeration & Air Conditioning Fundamentals (4)
   RH A122 Refrigeration & Air Conditioning (4)
   RH A201 Commercial & Ammonia Refrigeration (4)
3. A total of 24 credits is required for the Occupational Endorsement Certificate.

□ UNDERGRADUATE CERTIFICATE

Refrigeration & Heating Technology

ADMISSION REQUIREMENTS

See Admission to Undergraduate Certificate and Associate degrees on page 38. Students must achieve an acceptable score on placement tests in Reading, Writing and Mathematics.

ADVISING

Students are urged to meet with a faculty advisor prior to enrolling in RH courses.

ACADEMIC PROGRESS

Earn a cumulative GPA of 2.0 (C) or higher in required R&H courses to receive the certificate.

GENERAL UNIVERSITY REQUIREMENTS

Complete the General University Requirements for Certificates listed on page 68.

Certificate Requirements

1. Complete the following required courses: (51 credits)
   First Year, First Semester (Fall)
   RH A101 Refrigeration & Air Conditioning Fundamentals (4)
   RH A103 Technical Math for Industrial Trades (3)
   RH A105 Electrical Circuits for R & H I (3)
   RH A109 Principles of Thermodynamics (3)
   First Year, Second Semester (Spring)
   RH A122 Refrigeration & Air Conditioning (4)
   RH A126 Electrical Circuits for R & H II (3)
   RH A132 Troubleshooting HVAC/R Systems (3)

Matanuska-Susitna College 2010-2011 Catalog  Chapter 8 Page 91
Second Year, First Semester (Fall)
   RH A201 Commercial & Ammonia Refrigeration (4)
   RH A203 HVAC/R Basic Controls (3)
   RH A209 Codes for HVAC/R (2)
   RH A211 Customer Relations & Job Etiquette (1)
   RH A225 Heating Fundamentals & Forced Air Heat (4)

Second Year, Second Semester (Spring)
   RH A226 Commercial HVAC/R Systems (4)
   RH A228 Advanced Hydronic Heat Systems (4)
   RH A229 HVAC/R Control Systems (3)
   RH A232 HVAC/R Sheet Metal (3)

2. A total of 51 credits is required for the certificate.

ASSOCIATE OF APPLIED SCIENCE
Refrigeration & Heating Technology

ADMISSION REQUIREMENTS
See Admission to Undergraduate Certificate and Associate degrees on page 38. Students must achieve an acceptable score on placement tests in Reading, Writing and Mathematics.

ADVISING
Students are urged to meet with a faculty advisor prior to enrolling in RH courses.

ACADEMIC PROGRESS
Earn a cumulative GPA of 2.0 (C) or higher in required R&H courses to receive the AAS.

AAS DEGREE REQUIREMENTS
1. Complete the General University Requirements for Associate Degrees listed on page 68.
2. Complete the Associate of Applied Science general degree requirements (15 credits).
   Oral Communication Skills (3 credits):
   COMM A111 Fundamentals of Oral Communication (3)
   COMM A235 Small Group Communication (3)
   COMM A237 Interpersonal Communication (3)
   COMM A241 Public Speaking (3)

Written Communication Skills (6 credits):
   ENGL A111 Methods of Written Comm (3)
   and one of the following:
   ENGL A211 Academic Writing About Lit (3)
   ENGL A212 Technical Writing (3)
   ENGL A213 Writing in the Social & Natural Sciences (3)
   ENGL A214 Persuasive Writing (3)
   CIOS A260A Business Communication (3)

General Requirements (6 credits):
Choose one or a combination of Humanities*, Math, Natural Sciences, or Social Sciences courses. (See Associate Degree Course Classifications list on page 77.) Courses chosen must be at the 100-level or above.

* Any English course used to satisfy the Humanities general requirement must be different from the written communications requirement and have a course number higher than ENGL A111.

MAJOR REQUIREMENTS
1. Complete the following required courses: (51 credits)

First Year, First Semester (Fall)
   RH A101 Refrigeration & Air Conditioning Fundamentals (4)
   RH A103 Technical Math for Industrial Trades (3)
   RH A105 Electrical Circuits for R & H I (3)
   RH A109 Principles of Thermodynamics (3)

First Year, Second Semester (Spring)
   RH A122 Refrigeration & Air Conditioning (4)
   RH A126 Electrical Circuits for R & H II (3)
   RH A132 Troubleshooting HVAC/R Systems (3)

Second Year, First Semester (Fall)
   RH A201 Commercial & Ammonia Refrigeration (4)
   RH A203 HVAC/R Basic Controls (3)
   RH A209 Codes for HVAC/R (2)
   RH A211 Customer Relations & Job Etiquette (1)
   RH A225 Heating Fund & Forced Air Heat (4)

Second Year, Second Semester (Spring)
   RH A226 Commercial HVAC/R Systems (4)
   RH A228 Advanced Hydronic Heat Systems (4)
   RH A229 HVAC/R Control Systems (3)
   RH A232 HVAC/R Sheet Metal (3)

2. A total of 66 credits is required for the degree.

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