

Repeatable up to three credits toward graduation.

ACRT—AIR CONDITIONING AND REFRIGERATION TECHNOLOGY

**ACRT 1000
Survey of Air Conditioning and Refrigeration
1:1:0 Not 07-08**

An introductory course which allows students to explore the opportunities available in the challenging and rewarding fields of Air Conditioning, Refrigeration, Heating, and Sheet Metal work. Covers theories, physics, and principles of various refrigeration and air conditioning systems. Includes hands-on practice with flaring and welding copper tubing.

**ACRT 1110
Refrigeration I
10:5:15 Not 07-08**

For entry-level Refrigeration majors, students interested in exploring the Refrigeration and Air Conditioning industry, and those desiring vocational credit for the AS degree. Covers theory, physics, principles of operation, and installation procedures of refrigeration systems. Practices overhauling and servicing compressors. Provides practical experience in assembly, disassembly, service, and repair, with extensive practice in working with tubing, fittings, and metering devices. Includes lab. Safety principles and practices are emphasized.

**ACRT 111A
Refrigeration I
5:2.5:7.5 Not 07-08**

For entry-level Refrigeration majors, students interested in exploring the Refrigeration and Air Conditioning industry, and those desiring vocational credit for the AS degree. Covers half of ACRT 1110. Covers theory, physics, principles of operation, and installation procedures of refrigeration systems. Practices overhauling and servicing compressors. Provides practical experience in assembly, disassembly, service, and repair, with extensive practice in working with tubing, fitting, and metering devices. Includes lab. Emphasizes safety principles and practices.

**ACRT 111B
Refrigeration I
5:2.5:7.5 Not 07-08**

For entry-level Refrigeration majors, students interested in exploring the Refrigeration and Air Conditioning industry, and those desiring vocational credit for the AS degree. Covers half of ACRT 1110. Covers theory, physics, principles of operation, and installation procedures of refrigeration systems. Practices overhauling and servicing compressors. Provides practical experience in assembly, disassembly, service, and repair, with

extensive practice in working with tubing, fitting, and metering devices. Includes lab. Emphasizes safety principles and practices.

**ACRT 1120
Special Refrigeration Mathematics
3:3:0 Not 07-08**

For entry-level Refrigeration majors. Runs concurrently with ACRT 1110. Solves math-based problems in air conditioning and refrigeration. Deals with pressure and temperature of gases. Covers physics pertaining to the refrigeration field. Emphasizes calculation of mechanical drivers, compressor capacity and heat load. Gives opportunities to work with psychometric charts and Mollier diagrams.

**ACRT 1210
Refrigeration II
9:4:15 Not 07-08**

For second semester Refrigeration majors and interested Refrigeration and Air Conditioning service personnel desiring skill upgrading. Runs concurrently with ACRT 1220. Covers additional theory and practice in assembly, installation, service, and repair of refrigeration units, including domestic refrigerators and freezers. Emphasizes installation, operation, and testing of pressure regulating maintenance. Completers may gain entry-level employment in the domestic repair industry.

**ACRT 121A
Refrigeration II
4.5:2:7.5 Not 07-08**

For second semester Refrigeration majors and interested Refrigeration and Air Conditioning service personnel desiring skill upgrading. Runs concurrently with ACRT 1220. Covers half of ACRT 1210. Covers additional theory and practice in assembly, installation, service and repair of refrigeration units, including domestic refrigerators and freezers. Emphasizes installation, operation, and testing of pressure regulating maintenance. Completers may gain entry-level employment in the domestic repair industry.

**ACRT 121B
Refrigeration II
4.5:2:7.5 Not 07-08**

For second semester Refrigeration majors and interested Refrigeration and Air Conditioning service personnel desiring skill upgrading. Runs concurrently with ACRT 1220. Covers half of ACRT 1210. Covers additional theory and practice in assembly, installation, service and repair of refrigeration units, including domestic refrigerators and freezers. Emphasizes installation, operation, and testing of pressure regulating maintenance. Completers may gain entry-level employment in the domestic repair industry.

**ACRT 1220
Basic Electricity and Motor Controls
5:5:1 Not 07-08**

For second semester Refrigeration majors and interested Refrigeration and Air Conditioning service personnel desiring skill upgrading. Runs concurrently with ACRT 1210. Oriented to the refrigeration industry. Covers basic AC and DC electrical theory. Explains magnetism, induction, and generation of electricity. Covers Ohm's Law. Includes hands-on experience with motors and controls. Includes theory and practice in electrical wiring according to the National Electrical Code. Emphasizes safety principles and practices.

**ACRT 2320
Motors--Controls and Wiring Diagrams
5:5:0 Not 07-08**

For Refrigeration and Air Conditioning Technology majors and interested community members. Studies electric motor theory, electrical schematic diagrams and controls for refrigeration, heating, and cooling systems. Covers characteristics and uses of electric motors for refrigeration, heating and cooling systems. Emphasizes reading electrical symbols and wiring diagrams for heat pumps, gas heat systems, and cooling controls. Stresses safety practices. Should be taken concurrently with ACRT 2310.

**ACRT 2330
Sheet Metal Layout
1:0:3 Not 07-08**

For heating, ventilation, and air conditioning students. Includes hands-on experience in layout, fabrication, and assembly of sheet metal ducts. Students will also become acquainted with sheet metal hand tools, equipment, and safe usage. Practice is given in geometric drawings.

**ACRT 2340
Commercial Refrigeration Theory
4:4:0 Not 07-08**

• Prerequisite(s): ACRT 1110, ACRT 1210 or equivalent
For third semester Air Conditioning and Refrigeration Technology majors and those interested in upgrading commercial refrigeration knowledge and or skills. Covers various types of current commercial refrigeration systems and controls. Includes theory of installing, operating, servicing, and trouble shooting equipment. Emphasizes electrical and electronic controls that are used on these systems.

**ACRT 234L
Commercial Refrigeration Lab
5:0:15 Not 07-08**

• Prerequisite(s): ACRT 1110, ACRT 1210 or equivalent
Lab class for third semester Air Conditioning and Refrigeration Technology majors and those interested in upgrading commercial refrigeration skills. Covers

Course Descriptions

various types of current commercial refrigeration systems and controls. Includes lab hands-on experience with installing, operating, servicing, and trouble-shooting equipment. Emphasizes electrical and electronic controls that are used on these systems.

ACRT 2420

Heating and Air Conditioning Controls

5:5:0 Not 07-08

• Prerequisite(s): ACRT 2320

Runs concurrently with ACRT 2410.

For advanced Air Conditioning and Refrigeration Technology majors, as well as those interested in heating, ventilating, and air conditioning. Studies primary and safety controls for electric motors: gas, hot water, and electric heating, air conditioning, and humidifying. Covers modulating motors and controls for air handling. Electrical, mechanical, electronic, and pneumatic controls will be emphasized. Safety standards of ARI/GAMA gas manufacturers will be followed.

ACRT 2440

Commercial Refrigeration Heating and Air Conditioning Theory

4:4:0 Not 07-08

• Prerequisite(s): ACRT 2340 or equivalent

For advanced Air Conditioning and Refrigeration Technology majors. Studies processes and techniques in the commercial refrigeration, heating, ventilating, and air conditioning field. Special emphasis is placed on troubleshooting electrical and mechanical problems. Includes theory of start-up, preventative maintenance, service, repair, and installation of gas systems, heat pumps, and electric heat for residential and light commercial applications.

ACRT 244L

Commercial Refrigeration Heating and Air Conditioning Lab

5:0:15 Not 07-08

• Prerequisite(s): ACRT 234L or equivalent

Lab class for advanced Air Conditioning and Refrigeration Technology majors. Studies processes and techniques in the commercial refrigeration, heating, ventilating, and air conditioning field. Special emphasis on hands-on troubleshooting electrical and mechanical problems. Lab activities cover start-up, preventative maintenance, service, repair, and installation of gas systems, heat pumps, and electric heat for residential and light commercial applications. With departmental approval, students may be eligible for cooperative work experience or an internship opportunity as another method of earning lab credit.

ACRT 281R

Cooperative Work Experience

1 to 8:0:5 to 40 Not 07-08

• Corequisite(s): ACRT 285R the first time only
For Air Conditioning and Refrigeration

Technology majors. Provides paid, on-the-job work experience in the student's major. Work experience, the correlated class and enrollment are coordinated by the Cooperative Coordinator. Includes student, employer, and coordinator evaluation, on-site work visits, written assignments, and oral presentations. Provides experience in writing and completing individualized work objectives that improve present work performance.

ACRT 285R

Cooperative Correlated Class

1:1:0 Not 07-08

• Corequisite(s): ACRT 281R the first time only

For Air Conditioning and Refrigeration Technology majors. Identifies on-the-job problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with approval of the Cooperative Coordinator. Includes lecture, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Completers should be better able to perform in their field of work or study.

ACRT 299R

SkillsUSA

1:1:0 Not 07-08

For Air Conditioning and Refrigeration Technology majors. Supports and facilitates the goals and objectives of the SkillsUSA organization. Develops social awareness, civic, recreational, and social activities. May include participation in local, state, and national contests. Includes advanced trouble shooting and diagnostic training and experience.

AERO—AEROSPACE SCIENCE

AERO 1000

Leadership Laboratory IA

0.5:0:2 F

Studies basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility.

AERO 1010

Leadership Laboratory IB

0.5:0:2 Sp

Studies basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility.

AERO 1100

The Air Force Today

1:1:0 F

• Corequisite(s): AERO 1000

Teaches development, organization, and doctrine of the U.S. Air Force. Emphasizes Strategic Force requirements.

AERO 1110

Aerospace Defense General Purpose and Support Forces

1:1:0 Sp

• Corequisite(s): AERO 1010

Studies U.S. Air Force Defensive Forces, General Purpose Forces, and Tactical Air Forces.

AERO 143R

Air Force Physical Training

0.5:0:2 F, Sp

• Corequisite(s): AERO 1000

Prepares students for the physical demands placed upon them at Air Force Field Training encampment normally attended between their sophomore and junior years. Provides leadership opportunities and tests a cadet's physical fitness. Repeats are allowed. See advisor for details. May be repeated for a maximum of four credits.

AERO 2000

Leadership Laboratory 2A

0.5:0:2 F

Teaches fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Increased emphasis on performance level.

AERO 2010

Leadership Laboratory 2B

0.5:0:2 Sp

Teaches fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Increased emphasis on performance level.

AERO 2100

The Developmental Growth of Air Power-A

1:1:0 F

• Corequisite(s): AERO 2000

Studies development of various concepts of air power employment, emphasizing factors that have prompted research and technological change.

AERO 2110

The Development and Growth of Air Power-B

1:1:0 Sp

• Corequisite(s): AERO 2010

Studies development of various concepts of air power employment. Emphasizes factors that have prompted research and technological change.

AERO 3000

Leadership Laboratory 3A

0.5:0:2 F

Teaches basic fundamentals of military leadership: drill, courtesy, planning, and organizing at various levels of responsibility. Students perform as cadet officers. Emphasizes leadership development.