

# AIR CONDITIONING (AIRC)

## **AIRC 098 Directed Study in Air Conditioning 0.5-9 Units**

Individual or small groups of students who would benefit from Independent Study under the direction of faculty members in specific or related disciplines may develop individualized learning contracts designed to enhance their individual instructional programs. The students and the faculty member in consultation with the Division Dean will determine appropriate learning objectives and activities as well as the number of units to be earned. Instructions and the Learning Contract forms are available in the Division office. Repeatable to a maximum of 9 units across all disciplines.

Lecture Hours: None Lab Hours: 2.07 Repeatable: Yes Grading: L  
Advisory Level: Read: 2 Write: 2 Math: None  
Transfer Status: CSU Degree Applicable: AA/AS  
CSU GE: None IGETC: None District GE: None

## **AIRC 121 Air Conditioning Principles 4 Units**

Students will study concepts of electricity, control, and electrical loads found on air conditioning and refrigeration circuits. The course includes both the theory and practices of electricity applicable to the air conditioning and refrigeration industries.

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None  
Credit by Exam: Yes

## **AIRC 122 Refrigeration Principles 4 Units**

Students will study concepts of the vapor compression refrigeration system. The course includes both the theory and practice applicable to the mechanical function of air conditioning and refrigeration systems.

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None  
Credit by Exam: Yes

## **AIRC 131 Intermediate Air Conditioning 4.5 Units**

Students will gain technical knowledge and skills in the service, construction, and repair of medium to large central air conditioning systems. Students learn about comfort air conditioning systems, mechanical refrigeration systems, psychrometrics, humidification process, dehumidification process, duct systems, Fan Laws as well as the service procedures for central air conditioning systems.

Lecture Hours: 4 Lab Hours: 1.5 Repeatable: No Grading: L  
Prerequisite: AIRC 121 and AIRC 122 with C or better  
Advisory Level: Read: 3 Write: 3 Math: 1  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None  
Credit by Exam: Yes

## **AIRC 132 Refrigeration Service 4.5 Units**

Students study the servicing of commercial refrigeration systems and applied thermodynamics. Students examine topics including the design and construction of walk-in coolers and freezers, cooling towers, piping and accessories, 3-phase load and control circuits. Green and sustainable energy concepts are also covered. Students study for and are able to take the EPA certification exam onsite.

Lecture Hours: 4 Lab Hours: 1.5 Repeatable: No Grading: L  
Prerequisite: AIRC 121 and AIRC 122, both with C or better.  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None  
Credit by Exam: Yes

## **AIRC 133 EPA Section 608 Refrigerant Recovery Certification Program 2 Units**

Students will acquire the technical skills to complete the Section 608 of the Federal Clean Air Act "EPA Certification Program". They will study types of refrigerants, practical refrigerant recovery, recycling, evacuation, and recharging. Students successfully completing this course will receive the Section 608 EPA Universal Certification. A written board approved exam will be administered within the course whereupon students who successfully pass with 72% or higher will earn the Section 608 EPA Universal Certification.

Lecture Hours: 1.5 Lab Hours: 1.5 Repeatable: No Grading: L  
Advisory Level: Read: 3 Write: 3 Math: 2  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None  
Credit by Exam: Yes

## **AIRC 138 Work Experience 1-8 Units**

Work Experience is designed for students who work or volunteer in a field related to their career major. Students are required to provide evidence that they are enrolled in a career program (e.g., education plan or coursework in a career/technical subject area). Students can earn one unit of credit for each 60 hours of unpaid volunteer time or 75 hours of paid work during the semester. Students can repeat Career/Technical Work Experience, combined with General Work Experience, or alone, up to a maximum of 16 units. Internship/job placement is not guaranteed.

Lecture Hours: None Lab Hours: 2.07 Repeatable: Yes Grading: O  
Corequisite: Be employed or a volunteer at an approved work-site for the minimum number of hours per unit as stipulated for paid and unpaid status.  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU Degree Applicable: AA/AS  
CSU GE: None IGETC: None District GE: None

**AIRC 141 Hydronics and Air Distribution 3 Units**

Students will learn the analyses, maintenance, and service of hydronic heating and cooling systems and air distribution systems. Students will analyze design calculations, heat loss/gain, friction loss, and system balance for residential and commercial applications. Students will also study indoor air quality, water treatment, fan and pump performance and applications. Field trips may be required.

Lecture Hours: 3 Lab Hours: None Repeatable: No Grading: L  
Prerequisite: AIRC 131 and AIRC 132 both with C or better  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: None Degree Applicable: AS  
CSU GE: None IGETC: None District GE: None  
Credit by Exam: Yes

**AIRC 142 Air Conditioning Control Systems 4 Units**

Students will study theory, application, and operation of Heating, Ventilating, and Air Conditioning (HVAC) control systems including electric, pneumatic, solid state, and digital control systems. Students will also study Energy Management Systems (EMS) and building applications, and green technology including fire/smoke, lighting, and heating and ventilation controls.

Lecture Hours: 4 Lab Hours: None Repeatable: No Grading: L  
Prerequisite: AIRC 131 and AIRC 132 both with C or better  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU Degree Applicable: AA/AS  
CSU GE: None IGETC: None District GE: None

**AIRC 145 Sheet Metal Principles 2 Units**

Students will learn the concepts of design, construction, and installation of sheet metal for the air conditioning industry. Students will learn the fundamentals of sheet metal working processes, such as layout, cutting, forming, and fabrication, and will apply these fundamentals to hands-on lab projects.

Lecture Hours: 1 Lab Hours: 3 Repeatable: No Grading: L  
Advisory Level: Read: 3 Write: 3 Math: 2  
Transfer Status: CSU Degree Applicable: AA/AS  
CSU GE: None IGETC: None District GE: None  
Credit by Exam: Yes