

HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION, ASSOCIATE IN SCIENCE DEGREE

Control Number: 03976

Financial Aid Eligible

The Heating, Ventilation and Air Conditioning (HVACR) option prepares students for employment as heating, ventilating and air conditioning technicians. Students will be trained to install, service and maintain air conditioning/refrigeration equipment in buildings. The program provides a background for more advanced studies in the design and installation of computerized building automation systems.

Refrigeration relates to the cooling of air or liquids, thus providing lower temperatures to preserve food, cool beverages, make ice, and for many other applications. Air conditioning includes space cooling, heating, humidification, dehumidification, air filtration, and ventilation to condition the air and improve air quality. The field of HVACR Technology is vital to our health and security, from the cryogenic (ultra-low temperatures) scientific field to the preservation of our food products to the air conditioning of hospitals and institutions.

A math competency level equivalent to Tech A040 is strongly recommended or satisfactory score on math competency examination.

Complete the Heating, Ventilation, Air Conditioning, and Refrigeration Certificate of Achievement and the Associate in Science graduation requirements as outlined in the Graduation Requirements section of the catalog.

Program Outcome

Prepare students for entry-level employment as an HVACR Technician and for industry certifications.

Associate in Science Degree Requirements

- UNIT REQUIREMENT** - 60 UNITS, with at least a 2.0 grade point average. At least 12 of the units must be earned at OCC, with a minimum of one course taken for a letter grade. At least 3 units in an advanced course from the program must be completed at OCC. A student must be enrolled at the time of application for graduation. Units earned at an accredited college or university on a credit/no credit basis will be counted toward the degree requirements of the college, to a maximum of 15 units.
- MAJOR REQUIREMENT** - Complete the AS major requirements.
- MATHEMATICS REQUIREMENT** - Demonstrate competence in mathematics by either obtaining a satisfactory grade (grade of "C" or better or "pass") in a mathematics course at or above the level of Intermediate Algebra as demonstrated by prior coursework, or by demonstrating competency that is comparable through the completion of a college-level math course that has Intermediate Algebra as a prerequisite: Psychology A160 or Math A100 or higher, with the exception of Math A220.
- GENERAL EDUCATION REQUIREMENT** - Students may choose to complete Option 1 (OCC AS GE) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-science-general-education-option-1/>), Option 2 (CSU GE) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-2/>), or Option 3 (IGETC) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-3/>) (<https://catalog.cccd.edu/orange-coast/general-education-patterns/associate-degree-general-education-option-3/>) to satisfy the general education requirement. See the General Education Patterns section of this catalog for more information.

Course	Title	Units
Required Courses		
<i>Select one of the following:</i>		3
CHT A100	Computer Use in Technology	
CIS A100	Introduction to Computer Applications	
CIS A111	Introduction to Computer Information Systems	
HVAC A100	Air Conditioning and Refrigeration Principles	3
HVAC A101	Basic Electrical for HVAC-R	3
HVAC A102	Refrigeration Service	3
HVAC A103	Air Conditioning Service	3
HVAC A105	Air Conditioning and Refrigeration Controls	3
HVAC A110	Pneumatic Controls	3
HVAC A140	Building Automation	3
<i>Select six units of the following:</i>		6
HVAC A104	Air Balance	
HVAC A106	Non-Residential Applications for HVAC	
HVAC A111	Ice Machine Service & Repair	
Total Units		30

Requirement	Units
Program Major Units	30
AS General Education Option 1, 2, or 3	Varies
Transferable electives to satisfy unit requirement	Varies
Total Minimum Degree Units	60

Program Sequence

These sequences at Orange Coast College are general course curriculum maps for students to finish all major and general education requirements for two-year completion of degrees, and/or fulfillment of transfer requirements. The course sequence may include course prerequisites and other placement requirements. **Students are advised to meet with an Orange Coast College Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

Some courses in this program may be offered once per academic year.

Course	Title	Units
Year 1		
Semester 1		
HVAC A100	Air Conditioning and Refrigeration Principles	3
HVAC A101	Basic Electrical for HVAC-R	3
CHT A100 or CIS A100 or CIS A111	Computer Use in Technology or Introduction to Computer Applications or Introduction to Computer Information Systems	3

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Course	Title	Units
OCC AS GE AREA A1 - CHOOSE ONE		3
HVAC A104 or HVAC A106 or HVAC A111	Air Balance or Non-Residential Applications for HVAC or Ice Machine Service & Repair	3
Units		15
Semester 2		
HVAC A140	Building Automation	3
HVAC A102	Refrigeration Service	3
OCC AS GE AREA C1 - CHOOSE ONE		3
Select one of the following or satisfy Math competency (completion of High School Algebra 2 with a "C" or better):		3-4
MATH A030 or MATH A045	Intermediate Algebra ¹ or Combined Elementary and Intermediate Algebra	
ELECTIVE (DEGREE APPLICABLE)		3
Units		15-16
Year 2		
Semester 1		
HVAC A110	Pneumatic Controls	3
Choose one not already taken above:		3
HVAC A104 or HVAC A106 or HVAC A111	Air Balance or Non-Residential Applications for HVAC or Ice Machine Service & Repair	
HVAC A105	Air Conditioning and Refrigeration Controls	3
OCC AS GE AREA A2 - CHOOSE ONE ²		3-4
ELECTIVE (DEGREE APPLICABLE)		3
Units		15-16
Semester 2		
HVAC A103	Air Conditioning Service	3
OCC AS GE AREA B - CHOOSE ONE		3-4
OCC AS GE AREA C2 - CHOOSE ONE		3
OCC AS GE AREA D - CHOOSE ONE		3
ELECTIVE (DEGREE APPLICABLE) ³		3
Units		15-16
Total Units		60-63

¹ Math A030 or higher OR take 3-4 degree applicable elective units if math competency was met through completion of High School Algebra 2 with a "C" or better; *100-level Math courses satisfy AS Math Requirement and OCC AS GE AREA A2

² OCC AS GE AREA A2 - Required if 100-level MATH will not be taken to meet Math competency. If MATH A100 or higher will be taken, then needs to take 3-4 degree applicable elective units

³ VARIES TO REACH MINIMUM 60 DEGREE APPLICABLE UNITS