

APPT 180: HVACR INDUSTRY REVIEW

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2025
Units:	4.5
Hours:	36 lecture, 66 laboratory per quarter (102 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Refrigeration & Air Conditioning Mechanical Service Apprenticeship Program.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- A student will be able to demonstrate all chillers, boiler, pumps and controllers.
- A student will be able to classify and apply methods of installation of all special systems in our industry.
- A student will be able to demonstrate compressor overhaul.

Description

Fifth-year course of the Refrigeration and Air Conditioning Apprenticeship program. This course provides students with a working knowledge of troubleshooting, test, and repair of refrigeration and air conditioning systems.

Course Objectives

The student will be able to:

1. Recognize and classify all special systems related to the industry
2. Explain chillers, boilers, pumps, and controls
3. Demonstrate compressor overhaul
4. Pass the state certified HVACR STAR exam

Course Content

1. Recognize and classify special systems
 - a. Definition and examples
 - b. Basic computer systems
 - c. Troubleshooting
2. HVAC components (chillers, boilers, pumps, controls)
 - a. Classification of equipment
 - b. Product overhaul
 - c. Boiler maintenance
 - d. Control systems
3. Compressor overhaul

- a. Compressor components
- b. Equipment maintenance

Lab Content

Students will work individually and in teams in the lab, which includes:

1. Mechanical principles
2. Electrical principles
3. Pressurizing (air and water) and testing an HVAC system
4. Review of safety procedures for chiller and boiler systems

Special Facilities and/or Equipment

1. Laboratory with refrigeration air conditioning tools and equipment
2. Personal protective equipment
3. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Written examination
Hands-on demonstration
Chapter quizzes
Group and classroom participation
Punctuality

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture
Discussion
Laboratory
Demonstration

Representative Text(s) and Other Materials

U.A.. HVAC and Refrigeration Systems. 2014.

Texts older than five years may be utilized in this course as industry-standard texts.

HVAC STAR Review binder (learning materials and study guide for HVAC STAR exam).

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Readings from the course textbook
 - a. Exam preparation guide
 - b. HVACR practice review
2. Writing assignments include:
 - a. Student report on the results of testing (air and water) for HVAC systems

- b. Students take the State Certified Exit Exam for Journeyman Refrigeration & AC Mechanic

Discipline(s)

Air Conditioning, Refrigeration, Heating