

# APPT 180: HVACR INDUSTRY REVIEW

## Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2024
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

## 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