

APPT 171: BASIC REFRIGERATION/HERITAGE/CFC/OSHA 10

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2022
Units:	4.5
Hours:	36 lecture, 63 laboratory per quarter (99 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 identify and apply a better understanding to our local union.
- A student will be able to demonstrate and explain how thermodynamics apply to basic refrigeration.

Description

First-year course of the Refrigeration and Air Conditioning Apprenticeship program. This course provides students with a working knowledge of thermodynamics, chlorofluorocarbons (CFC), and basic refrigeration, as it pertains to the air conditioning service industry. Also provides OSHA 10 certification.

Course Objectives

The student will be able to:

- Explain and demonstrate how thermodynamics apply to basic refrigeration
- Have a better understanding of our international union
- Achieve OSHA 10 certification

Course Content

- Thermodynamics
 - Basic refrigeration
 - Heat
 - Gases
 - Refrigerants
 - Soldering and brazing
 - Safety (Section A)
 - Fundamental of science (Section E)
- International union

- Heritage of the trade
 - Student success in the trade
- OSHA 10
 - Prepare for test
 - Complete certification test

Lab Content

Students will work individually and in teams with refrigeration tools and equipment in the lab, which includes:

- Preparation for soldering, brazing and welding
- Thermodynamic principles and lab analysis

Special Facilities and/or Equipment

- Laboratory with refrigeration tools/equipment
- Personal protective equipment
- 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

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.

U.A.. Job Safety and Health. 2020.

U.A.. Standard for Excellence. 2019.

. Soldering and Brazing. 2020.

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

- Readings from the textbook
 - Heritage & Plumbing Trade History
 - Reducing Chloro-Fluoro Carbon Emissions
 - The Application of Basic Electricity in the Plumbing trade
 - The Application of Refrigeration in the Plumbing trade
- Writing assignments are related to the assignments given in the laboratory

- i. Calculations of CFCs, volume, flow and leakage
- ii. Completing a pressure-enthalpy diagram

Discipline(s)

Air Conditioning, Refrigeration, Heating