

APPR 168: SUPERMARKET REFRIGERATION

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	5
Hours:	37 lecture, 86 laboratory per quarter (123 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Plumbing & Pipefitting Apprenticeship Program.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- 2- Explain the difference between electric defrost and hot gas defrost.
- 1- Explain why we have pump down systems and their benefits

Description

Second-year course of the Plumber, Pipefitter & Service Technician Apprenticeship Program. Provides the student with a working knowledge of the fundamentals of oil return and oil separators, electric and hot gas exhaust, multi-stage compressor systems and pump down systems.

Course Objectives

The student will be able to:

- Describe hot gas defrost and demonstrate how it works.
- Explain elect defrost and demonstrate how it works.
- Explain how a oil separator works.
- Explain why we have pump down systems.
- Describe the importance of oil return.

Course Content

- Hot Gas Defrost
 - How it is piped around a evaporator coil
 - Where hot gas comes from and how it is diverted
- Elect Defrost
 - Understanding how a defrost time clock works, and how to set it up
 - Testing the elect heat strips in a coil
- Oil Separator
 - Understanding how it works and if it is working correctly
 - Define how it is piped into a system
- Pump Down Systems
 - Draw a pump down system out
 - Define why we have a pump down system and the benefits
- Oil Return
 - Understanding how to pipe a system for correct oil return
 - Making sure there is enough refrigerant velocity for oil return

Lab Content

Students will work individually and in teams on practical problems in:

- Oil piping return diagrams
- Test elect defrost timer operation and draw it out
- Run test hot gas operation
- Test oil separator for correct operation
- Run test pump down systems

Special Facilities and/or Equipment

- Lecture and laboratory classrooms with chalkboard.
- Hampton refrigeration trainer in shop.

Method(s) of Evaluation

Written examination
Hands-on Hampton trainer
Group and classroom participation

Method(s) of Instruction

Lectures and classroom discussions on market refrigeration
Laboratory (hands-on) refrigeration Hampton trainer
Demonstrations in front of classroom

Representative Text(s) and Other Materials

International Pipe Trades Joint Training Committee, Inc.. [HVACR Student Set](#). 2008.

Although this text is older than the suggested "5 years or newer" standard, it remains a seminal text in this area of study.

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

- Readings from [HVACR Student Set](#):
 - HVACR Training Manual, Unit 25, Special Refrigeration System Components
- Writing assignments include homework from:
 - HVACR Training Manual, Unit 25, Special Refrigeration System Components

Discipline(s)

Plumbing OR Steamfitting OR Air Conditioning, Refrigeration, Heating