

APSM 153A: FIELD INSTALLATION FOR THE SERVICE TECHNICIAN

Foothill College Course Outline of Record

Heading	Value
Units:	2.5
Hours:	30 lecture, 10 laboratory per quarter (40 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Sheet Metal 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

- A successful student will be able to describe various connections for typical HVAC “package” air conditioning equipment.
- A successful student will be able to list basic “start up” procedures for an HVAC system.

Description

Students establish basic steps for installation and start-up of HVAC systems.

Course Objectives

The student will be able to:

- Understand the process of field installation
- Understand the equipment installation requirements overview (as per SMACNA standard, code requirements, and manufacturer’s requirements)
- Find and perform penetration layout
- Understand the requirements of curb installation
- Understand the fire and smoke dampers installation overview as per code and manufacturer’s requirements
- Understand the procedures of equipment start-up
- Achieve crane and rigging qualification
- Practice aerial lift safety

Course Content

- Field installation
 - List three crafts involved with air conditioning installation (Lec and Lab)
 - Identify types of duct system installations (Lec and Lab)
 - Describe the installation of metal duct (Lec and Lab)
 - Describe the installation of duct board systems (Lec and Lab)
 - Describe the installation of flexible duct (Lec and Lab)
- Equipment installation requirements overview (as per SMACNA standard, code requirements, and manufacturer’s requirements)
 - Describe split air conditioning system installation (Lec and Lab)

- Penetration layout (Lec and Lab)
- Curb installation
 - Recognize good installation practices for packaged air conditioning equipment (Lec and Lab)
 - Discuss different connections for packaged air conditioning equipment (Lec and Lab)
- Fire and smoke dampers installation overview as per code and manufacturer’s requirements (Lec and Lab)
- Equipment start-up
 - Recognize correct refrigeration piping practices (Lec and Lab)
 - State start up procedures for air conditioning equipment (Lec and Lab)
- Crane and rigging qualification (Lec and Lab)
- Aerial lift safety (Lec and Lab)

Lab Content

- Observe and practice installation demonstrations on lab equipment.
- Demonstrate proper techniques to achieve Crane and Rigging safety certification.

Special Facilities and/or Equipment

- Laboratory with sheet metal service tools
- Personal protective equipment

Method(s) of Evaluation

- Results of written quizzes and tests
- Responses in class discussions
- Comprehensive written final examination
- Demonstration of assigned skills to acceptable level per instructor

Method(s) of Instruction

- Lecture
- Discussion
- Demonstration
- Lab assignments followed by discussion

Representative Text(s) and Other Materials

Whitman, B., B. Johnson, J. Tomczyk, and E. Silberstein. Refrigeration and Air Conditioning Technology. 8th ed. Boston, MA: Cengage Learning, 2016.

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

- Sample reading assignment: From the textbook, read Unit 38, “Installation.”
- Sample writing assignment: Answer review questions related to assigned reading.

Discipline(s)

Sheet Metal, Air Conditioning, Refrigeration, Heating