

APPT 134A: P-202A RIGGING; LAYOUT

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2024
Units:	2.5
Hours:	18 lecture, 36 laboratory per quarter (54 total per quarter)
Prerequisite:	Per California Code of Regulations, this course is limited to students admitted to the Plumbing Technology Apprenticeship Program.
Advisory:	Not open to students with credit in APPR 113.
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 demonstrate knowledge in the selection and use of slings.
- A successful student will be able to identify proper rigging hardware and sling configurations.
- A successful student will be able to demonstrate use of the laser level.

Description

Instruction in identification and tying various types of knots; study in hands-on safe practices of rigging and hoisting piping materials. Instruction in the use of a transit, builder's level, laser level, and other measuring instruments in the layout and installation of piping systems. Establish the invert elevations and coordination of piping systems by means of profile drawings.

Course Objectives

The student will be able to:

1. Demonstrate ability to identify and tie various types of knots and hitches
2. Define safety protocol relative to rigging operations
3. Demonstrate crane signals
4. Identify proper rigging hardware and sling configurations
5. Perform hands-on rigging operations using rigging equipment and machinery
6. Describe the components and use of measuring tools, transits, and builder's levels
7. Perform leveling procedures used for layout and installations of piping systems

Course Content

1. Demonstrate ability to identify and tie various types of knots and hitches
 - a. Four requirements of rope fastening and three parts of a rope
 - b. Basic elements of knots
 - c. Tie various knots and hitches required for specific rigging operations
2. Define safety protocol relative to rigging operations
 - a. Rigging hazards
 - b. Safety and health standards
 - c. Duties and responsibilities of supervisor and rigging personnel
3. Demonstrate crane signals
 - a. Conditions requiring hand signals
 - b. Cranes and crane signals
 - c. International hand signals
4. Identify proper rigging hardware and sling configurations
 - a. Safe sling configurations
 - b. Calculate safe working load limits of slings
 - c. Identify capacity and safe working load limits
5. Perform hands-on rigging operations using rigging equipment and machinery
 - a. Safety protocol relative to barricade and notification of people in the area
 - b. Operate small rigging equipment, such as jacks, come a-longs, and chain falls
 - c. Pipe rigging project at rigging structure
6. Describe the components and use of measuring tools, transits, and builder's levels
 - a. Discuss combination transit and levels
 - b. Explain the difference between a builder's level and a transit level
 - c. Set-up and care procedures for transit level
 - d. The laser level
7. Perform leveling procedures used for the layout and installation of piping systems
 - a. Conversions from architectural to engineering scale
 - b. Elevation readings
 - c. Laying out a line
 - d. Establishing depth
 - e. Establishment of invert elevations
 - f. Identifying stations
 - g. Elevations of a ditch
 - h. Profile drawings

Lab Content

Students will work individually and in teams on safe practices of rigging and crane operation and basic layout of piping systems.

Special Facilities and/or Equipment

1. Laboratory with plumbing/rigging equipment and measuring instruments.
2. 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:

Results of written exercises and final examination
Satisfactory completion of hands-on projects
Maintenance of a student's workbook with questions drawn from text

Method(s) of Instruction

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

Lecture
Lab assignment
Group discussion
Demonstration

Representative Text(s) and Other Materials

International Pipe Trades Joint Training Committee, Inc.. Rigging. 2014.

International Pipe Trades Joint Training Committee, Inc.. Related Math. 2016.

KORE-TECKX, Inc.. The Pipe Fitters Field Book. 2015.

Although these textbooks are older than 5 years, they conform to national training standards and are considered seminal works in the discipline. We will adopt the next edition of each text, as it is published.

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

1. Readings from assigned textbook, Rigging
 - a. Chapter 6, Cranes and Crane Signals
2. Writing assignments given in the laboratory
 - a. Calculate safe working load limits of wire rope slings
 - b. List control measures for the elimination and control of crane operation hazards

Discipline(s)

Plumbing