

APPT 186: MATHEMATICS/ RIGGING & SIGNALING

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

- A student will be able to identify components of building drainage systems.
- A student will be able to describe process required for sizing fuel gas piping.
- A student will be able to calculate piping offsets.

Description

This course provides students with a working knowledge of mathematics, rigging and signaling as it applies to the Plumbing and Pipefitting industry. Students will apply safety practices as it relates to on-the-job training.

Course Objectives

The student will be able to:

- Perform basic math calculations required in the plumbing and pipefitting industry
- Perform safe rigging and signaling applications in the plumbing and pipefitting industry
- Recognize and properly use chainfalls, slings, shackles and come alongs to safely complete required tasks

Course Content

- Mathematics
 - Basic math review
 - Formulas and tables
 - Pipe measurement
- Rigging
 - IPT Rigging & Signaling Handbook
 - Formulas and tables
 - Pipe measurements
- Chainfalls, slings and shackles
 - Use of weight charts and tables

- Use the required chainfalls, slings, shackles for the correct lift of materials

Lab Content

- Students will work on applying math principles and concepts of the layout for piping systems
- Perform math and geometry for pipe measurements
- Calculate formulas for related math in the plumbing trades
- Perform metric measurements
- Operate instruments used for piping systems layout
- Use of chainfalls, slings, shackles

Special Facilities and/or Equipment

- Laboratory with overhead projector
- Calculator
- Shackles, slings, chainfalls

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
- Group exercises

Method(s) of Instruction

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

- Discussion
- Laboratory
- Demonstration

Representative Text(s) and Other Materials

United Association. [Related Mathematics](#). 2008.

Garby, Ronald G.. [IPT's Crane and Rigging Handbook](#). 2005.

United Association. [Rigging](#). 2007.

NOTE: These are the Plumbing textbooks used for this course. Although, one or more may not be within 5 years of the required published date, they are the most current books used when teaching this course. 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

A. Readings from the textbooks, [Related Mathematics](#) and [IPT's Crane and Rigging Handbook](#). Examples include:

- Related Math for the Plumbing Trades, Ch. 1-2
- Application of Geometry for the Plumbing Trades, Ch. 3
- Instrumentation for piping systems layouts

B. Writing assignments are related to the assignments given in the laboratory. Examples include:

- Math calculations for pipe measurements

2. Applying formulas for related math in the pipe trades
3. Calculating metric measurements for piping system layouts
4. Specifying instruments used for piping system layouts

Discipline(s)

Plumbing