Course Information Form (CIF)

Course Code: PFT 114

Course Title: Science, Rigging, and Hoisting

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 46.0503
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 1-6-3
Credit Hour Distribution:

Lecture: 1	Lab: 6	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Science and mechanics. Rigging procedures; wire and fiber rope for knots, hitches, and slings. Use of hoisting equipment and cranes. Loading and unloading of hoisting equipment.

General Course Objectives

Students will be able to safely and properly load, use, and unload hoisting equipment.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Admission into the Plumbers and Pipefitters Apprenticeship program

Methods of Evaluation

The minimum evaluation methods include 4 written and 4 practical exams.

Instructional Materials and Additional Supplies

Related Science, International Pipe Trades Joint Training Committee (IPTJTC), Inc. 2004.
Rigging, IPTJTC, 2004.

Course Content

General Learning Outcomes (GLOs)

- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Science and Mechanics: a) Properties of Matter, b) Hydraulics and Pneumatics, c) Mechanics, d) Metals and Alloys, and e) Corrosion	1. Describe the properties of matter. 2. Describe the physics concepts related to hydraulics and pneumatics encountered in trades. 3. Describe the physical properties of metals. 4. Describe the types of corrosion and how to protect against them. 5. Calculate rates of flow and velocity.	3	6	0
Rigging: a) Fiber, b) Safe Loads, c) Hand Signals, d) Wire Rope, e) Rigging Hardware, and f) Calculations	1. Configure knots, hitches, and slings in fiber rope. 2. Calculate safe loads for given rope, knots, and slings. 3. Perform proper hoisting signals. 4. Demonstrate proper safety procedures when loading and unloading equipment. 5. Rig knots, hitches, and slings in fiber and wire rope. 6. Describe the proper practices for the care and safe handling of fiber and wire ropes. 7. Calculate safe loads for given ropes, knots, and slings.	2	24	0
Cranes: a) Hoisting, b) Crane Signals, and c) Safety	1. Demonstrate signals used for different types of cranes.	2	15	0
Hoisting with Helicopters	1. Describe special procedures and safe operating practices required for hoisting with helicopters.	2	6	0
Hoisting Equipment: a) Chain Hoist; b) Cable Winches; c) Pull-Lift Hoist; d) Rope, Block, and Tackle; and e) Jacks	1. Load and unload hoisting equipment using safe and proper procedures.	2	15	0
Intermediate Materials, Installations, and Procedures: a) Pipe, b) Methods of Joining Pipe, c) Pipe Fitting, d) Valves, and e) Hangers	1. Complete a given fitting project, demonstrating knowledge of materials and procedures appropriate to an apprentice.	2	18	0
Intermediate Mathematics Applications: a) Simple Operations and b) Measures	1. Complete intermediate fitting problems using measurement and mathematical computations.	2	6	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
15	90	0