

ATMW-1450: HEAVY RIGGING

Cuyahoga Community College

Viewing: ATMW-1450 : Heavy Rigging

Board of Trustees:

2007-05-24

Academic Term:

Fall 2025

Subject Code

ATMW - Appld Ind Tech - Millwrighting

Course Number:

1450

Title:

Heavy Rigging

Catalog Description:

Study of rigging hardware and equipment required to lift equipment and material. Topics include mobile, fixed, tugger, and hand rigging cranes, formulating a safe lifting plan through the use of applicable calculations, weight estimation, sling loads, signaling, crane limitations, and implementing OSHA safety regulations.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Acceptance to Millwrighting Technology apprenticeship program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.

Outcomes

Course Outcome(s):

Work safely, effectively, and efficiently on a job site where heavy rigging occurs.

Objective(s):

1. Identify and inspect rigging hardware.
2. Identify uses and limitations of mobile, fixed, tugger, and hand rigging cranes.
3. Demonstrate proper hitch configuration and hardware selection for a safe lift.
4. Calculate sling loads.
5. Demonstrate safe lifts using proper hand and voice signals.
6. Demonstrate safe lifts by properly transferring hand signals.
7. Identify and apply OSHA standards.
8. Estimate approximate weight of equipment or material to be lifted.

Methods of Evaluation:

1. Quizzes
2. Exams
3. Classroom participation
4. Demonstration of assigned projects

Course Content Outline:

A.Concepts

- 1.Rigging hardware:wire rope
- 2.Rigging hardware:chain
- 3.Rigging hardware:slings
- 4.Rigging hardware:rigging devices
- 5.Rigging hardware construction and inspection
- 6.Crane type:mobile
- 7.Crane type:fixed
- 8.Crane type:tugger
- 9.Crane type:hand rigging
- 10.Crane type uses and limitations
- 11.Crane set-up
- 12.Hitch configurations
- 13.Slings
- 14.Sling angles
- 15.Sling load calculations
- 16.Lifting hardware
- 17.Hand signals
- 18.Voice signals
- 19.Transferring hand signals
- 20.Hoisting operations
- 21.Safe lift procedures and guidelines
- 22.OSHA rigging standard:29 CFR 1926.251
- 23.OSHA rigging standard:29 CFR Sub Part N
- 24.Equipment weight
- 25.Material weight
- 26.Weight estimating

B.Skills

- 1.Identifying and inspecting rigging hardware
- 2.Using and applying knowledge of the limitations of mobile cranes
- 3.Using and applying knowledge of the limitations of fixed cranes
- 4.Using and applying knowledge of the limitations of tugger cranes
- 5.Using and applying knowledge of the limitations of hand rigging cranes
- 6.Using proper hitch configuration
- 7.Calculating sling loads
- 8.Selecting hardware for lift
- 9.Using proper hand signals to direct hoisting operations
- 10.Using proper voice signals to direct hoisting operations
- 11.Properly transferring hand signals to direct hoisting operations
- 12.Identifying and applying OSHA standards
- 13.Estimating approximate weight of equipment or material to be lifted

C.Issues

- 1.OSHA rigging standards
- 2.Importance of safety issues related to rigging
- 3.Safety features of equipment
- 4.Professional demeanor to promote credibility of the trade
- 5.Communication skills to promote effective interpersonal skills

Resources

Construction Safety Association of Ontario. *Rigging Video Series*. Ontario: Construction Safety Association of Ontario, 1996.

United Brotherhood of Carpenters. *Qualified Rigger Program*. Washington: United Brotherhood of Carpenters, 1986.

Rossnagel, W.E. "Handbook of Rigging for Construction and Industrial Operations"

Rigging. Las Vegas, NV: Carpenters International Training Fund, 2023.

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