

COURSE INFORMATION:

Course Prefix/No.: IMT 120
Course Title: Mechanical Installations
Lecture Hours/Week: 4.0
Lab Hours/Week: 3.0
Credit Hours/Semester: 5.0

[Distance Learning Attendance/VA Statement](#)
[Textbook Information](#)

COURSE DESCRIPTION:

This course covers techniques of assembling, rigging, installation and/or maintenance of mechanical equipment.

COURSE COMPETENCIES:

Upon successful completion of this course, the student should be able to:

Module 1 - Mensuration & Calculations

- Make weight estimations.
- Make area estimations.
- Make volume estimations.
- Use measurement tools and devices to prove estimations.

Module 2 - Rigging Equipment

- Identify the different types of natural rope and the construction of each.
- List the advantages and disadvantages of each type of natural rope.
- Identify the different types of synthetic rope and the construction of each.
- List the advantages and disadvantages of each type of synthetic rope.
- Identify the different types of wire rope and the construction of each.
- Discuss the proper use of wire rope.
- Discuss and perform proper care and maintenance for all rope types.
- Perform safety inspection on all rope types.
- Perform fiber rope splicing.
- Make the following knots in organic and synthetic rope.
 - Bowline
 - Bowline on the bight
 - Spanish bowline
 - Self-centering bowline
 - Running bowline
 - Clove hitch
 - Barrel hitch
 - Reef knot
 - Carrick bend
 - Catspaw

- Identify, inspect, and properly use the following rigging hardware and equipment:
 - Slings
 - Chains
 - Block and tackle
 - Shackles
 - Clevis hooks
 - Wire rope clips
 - Chain sling
 - Come-a-long
 - Pry bar
 - Pinch bar

Module 3 – Proper Rope, Chain, and Sling Selection

- Make the proper selection of rope, chain, or sling based upon:
 - The load to be lifted.
 - The working load limits (WLL).
 - The safe working load (SWL).
 - Breaking strengths.
 - The physical dimensions of the load to be lifted.

Module 4 – The Hoist/Cranes

- Determine and/or calculate hoist loads.
- Select the proper hoisting system based upon the load that is to be lifted.
- Perform pre-lift planning.
- Perform proper hoist rigging.
- Use correct hoisting and lowering hand signals.
- Perform safe load lifts using a gantry hoist.
- Identify a chain fall and determine its load capability.
- Explain the components and operation of a mobile boom crane.
- Explain the components and operation of a jib crane.
- Explain the components and operation of overhead cranes.

Module 5 - Machinery & Equipment Installation

- Perform proper machinery layout.
- Perform proper jacking techniques.
- Demonstrate the proper use of pry bars and pinch bars.
- Make proper rigging connections for lifting/lowering machinery and/or equipment.
- Discuss the theory of moving machinery with the use of air bearings.
- Safely install and/or remove machines.
- Provide vibration & noise control.
- Anchor equipment according to specifications.
- Understand and implement proper grouting techniques.
- Correctly install bedplate shims.
- Understand and perform proper leveling techniques when installing new machinery.

Module 6 – Safety

- Demonstrate personal safety.
- Demonstrate shop safety.

- Properly select the correct tool and/or equipment needed for proper machinery installation.
- Perform a safety inspection of all hand tools that are used.
- Perform a safety inspection of all power tools that are used.

MINIMAL STANDARDS:

Assignments and attendance must be completed as designated in “Evaluation Strategies/Grading.” Criteria for minimal acceptable performance will be provided by the instructor.

REQUIREMENTS:

Attendance Policy

The college attendance policy, stated in the college handbook, will be honored. The instructor will provide specific requirements for the course.

Academic Honesty

Students are expected to adhere to the college policy regarding student conduct as stated in the college handbook.

Assignments

Students are expected to complete all assignments and any supplementary exercises designated by the instructor.

EVALUATION STRATEGIES/GRADING:

Successful completion of the course requires the completion of each module with an average of 70 points. Grades will be calculated from work attitude, all tests/projects, homework assignments, and laboratory assignments.

Grading Scale:

A = 90.0 – 100

B = 80.0 – 89.9

C = 70.0 – 79.9

D = 60.0 – 69.9

F = 00.0 – 59.9

Evaluation Method:

Tests/Projects

50.0% for each Module

Lab Work

25.0% for each Module

Work Attitude

25.0% for each Module

Each module counts

16.67% of final grade.

Work Attitude is defined as:

- Participation
- Cooperation
- Appearance

- Effort
- Safety
- Responsibility

- Professionalism
- Attendance

- Self Motivation
- Works Independently

ENTRY LEVEL SKILLS:

The student must be able to read and design basic relay ladder diagrams. The student must also have basic computer skills.

PREREQUISITES/CO-REQUISITES:

Prerequisite:

RDG 031 or equivalent and MAT 032 or equivalent

Co-requisite:

None

METHODS OF INSTRUCTION:

This course may be offered in traditional classroom format or as a self-paced, CD-based, hybrid delivery format.

Lectures, reading assignments, projects, discussions, video presentations, multimedia presentations, and web content are the major teaching methods used in this course.

Disabilities Statement: Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Special Resources Offices (SR) at 803-327-8007 in the 300 area of Student Services. The SRO coordinates reasonable accommodations for students with documented disabilities.

Effective: 2009FA