

---

**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 all modules 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:

- |  |  |
|--|--|
| <input type="checkbox"/> Participation | <input type="checkbox"/> Responsibility      |
| <input type="checkbox"/> Cooperation   | <input type="checkbox"/> Professionalism     |
| <input type="checkbox"/> Appearance    | <input type="checkbox"/> Attendance          |
| <input type="checkbox"/> Effort        | <input type="checkbox"/> Self Motivation     |
| <input type="checkbox"/> Safety        | <input type="checkbox"/> Works Independently |

## 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.

**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:** RDG 031 or equivalent and MAT 031 or equivalent

**CO-REQUISITES:** None

**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