**Course Information**

- **Division**: Industrial Technology Education
- **Course Number**: IPT 140
- **Title**: Bulk Materials Handling
- **Credits**: 3
- **Developed by**: M. Crockett/Revised by Frank Martinez/Brian Coppola
- **Lecture/Lab Ratio**: 1 Lecture/4 Lab
- **Transfer Status**: Pending evaluation
- **Activity Course**: No
- **CIP Code**: 47.0303
- **Assessment Mode**: Pre/Post Test (50 Questions/100 Points)
- **Semester Taught**: Spring
- **GE category**: None
- **Separate Lab**: No
- **Awareness Course**: No
- **Intensive Writing Course**: No

**Prerequisites**

None

**Educational Value**

A. To general education: None
B. To other courses or curricula: This course is a curriculum requirement for the Industrial Plant Technician certificate.

**Description**

This course covers the safe operation, maintenance, and repair of industrial materials handling machinery, including conveyors, feed and discharge devices, screens, and crushers.

**Supplies**

None
Competencies and Performance Standards

1. Understand power transmission equipment

Learning Objectives
What you will learn as you master the competency:

a. explain the function of gear-box transmissions
b. explain fluid drives
c. explain chain drives
d. identify various couplings

Performance Standards
Competence will be demonstrated:

- in class discussion
- group practice
- using model power transmission equipment
- on written tests

Performance will be satisfactory when:

- learner completes written test to 70% correct
- learner demonstrates understanding of power transmission

2. Understand lubrication issues

Learning Objectives
What you will learn as you master the competency:

a. list types of friction
b. compare types of lubricants
c. compare properties of lubricants
d. explain the role of common additives
e. describe methods of lubricant delivery
f. define viscosity and use it to identify various oils
g. discuss environmental concerns of handling and use of petroleum-based lubricants

Performance Standards
Competence will be demonstrated:

- in class discussion
- group practice
- using model systems
- on written tests

Performance will be satisfactory when:

- learner completes written test to 70% correct
- learner correctly identifies various lubricants
- learner demonstrates the effects of proper and faulty lubrication

3. Understand bearing design, use, and maintenance

Learning Objectives
What you will learn as you master the competency:

a. use correct nomenclature for bearing parts
b. identify types and characteristics of bearings
c. demonstrate proper storage, installation, and maintenance of bearings
d. discuss special bearing applications
e. identify the causes of bearing failure

**Performance Standards**

*Competence will be demonstrated:*

- in class discussion
- group practice
- using model bearings
- on written tests

*Performance will be satisfactory when:*

- learner completes written test to 70% correct
- learner correctly identifies model bearing types
- learner demonstrates proper storage, installation, and maintenance of bearings

4. **Understand oil seal design, use, and maintenance**

**Learning Objectives**

*What you will learn as you master the competency:*

f. use correct nomenclature for seal parts
g. identify types and characteristics of seals
h. demonstrate proper installation and maintenance of bearings
i. discuss specific applications of oil seals
j. identify the causes of seal failure

**Performance Standards**

*Competence will be demonstrated:*

- in class discussion
- group practice
- using model seals
- on written tests

*Performance will be satisfactory when:*

- learner completes written test to 70% correct
- learner correctly identifies model seal types
- learner demonstrates proper installation and maintenance of seals

5. **Perform belting maintenance and repair**

**Learning Objectives**

*What you will learn as you master the competency:*

a. discuss construction and design of belting systems
b. perform mechanical repairs in belting systems
c. compare mechanical and materials failures
d. perform troubleshooting in belting systems
e. recognize loading areas
f. perform training and alignment adjustments
g. perform head pulley, tail pulley, take-up and tensioning adjustments
h. check troughing idlers
i. check return idlers

Performance Standards

Competence will be demonstrated:
- in class discussion
- using model belting systems
- group practice
- individual demonstrations
- written tests

Performance will be satisfactory when:
- learner completes written test to 70% correct
- learner selects the proper techniques to perform assigned adjustment tasks
- learner demonstrates safe and efficient use and maintenance procedures

6. Perform basic support structure repair

Learning Objectives

What you will learn as you master the competency:

- a. analyze framing design and materials
- b. make simple repairs to framing

Performance Standards

Competence will be demonstrated:
- in class discussion
- using model systems
- individual demonstrations

Performance will be satisfactory when:
- learner successfully completes inspection and repair task

Types of Instruction

Lecture/modeling
Lab assignments
Group practice
Individual projects

Grading Information

Assignments

Labs—50%
Written tests—50%
**Grading Scale**

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = 0-59%