



Western Technical College

32412404 Diesel Safety and Industry Practices

Course Outcome Summary

Course Information

Description	This course will introduce students to the safety and legal requirements and common shop practices of the diesel and heavy equipment industry. Personal safety as well as overall shop/job site safety will be emphasized while students learn to operate shop equipment and learn basic repair techniques common to all aspects of the diesel and heavy equipment industry. Skills learned in this course will be directly applied throughout the diesel and heavy equipment technician program.
Career Cluster	Transportation, Distribution and Logistics
Instructional Level	Technical Diploma Courses
Total Credits	2
Total Hours	72

Textbooks

Fundamentals of Medium/Heavy Duty Commercial Engines. 2nd Edition. Copyright 2020. Duffy, Owen C. and Gus Wright. Publisher: Jones & Bartlett Publishers. **ISBN-13**: 978-1-284-15093-3. Required.

Success Abilities

1. Live Responsibly: Embrace Sustainability

Experiential Learning

1. Community Based Learning Project

Course Competencies

1. **Identify safety procedures for personal safety.**

Assessment Strategies

- 1.1. written objective test
- 1.2. scenario response

Criteria

You will know you are successful when:

- 1.1. you determine the proper personal protection device needed.
- 1.2. you demonstrate proper lifting posture.
- 1.3. you determine proper first aid procedure.
- 1.4. you recognize the hazards associated with bloodborne pathogens.

Learning Objectives

- 1.a. Identify the proper choice and use of eye protection required for the task.
- 1.b. Identify the proper choice and use of hearing protection needed for the task.
- 1.c. Identify proper choice and use of respirator for the task.
- 1.d. Identify proper choice and use of headgear for the task.
- 1.e. Identify proper choice and use of protective gloves for the task.
- 1.f. Identify proper first aid procedures for a scenario.
- 1.g. Identify location of first aid equipment in lab.

2. Identify safe lifting and supporting procedures.

Assessment Strategies

- 2.1. Written objective test
- 2.2. Skill demonstration

Criteria

You will know you are successful when:

- 2.1. you determine the proper jack rating to lift an object.
- 2.2. you determine the proper equipment needed to support a raised object.
- 2.3. you identify proper rigging and overhead hoist capacity to lift an object.
- 2.4. you determine safe rigging of an object to be lifted by an overhead crane.
- 2.5. you determine proper jack placement to lift an object.

Learning Objectives

- 2.a. Demonstrate proper jack placement to lift an object
- 2.b. Estimate the weight of an object to be lifted.
- 2.c. Choose the proper weight rating for the jack or crane to lift an item.
- 2.d. Choose the proper blocking or jack stands to support a raised item.
- 2.e. Plan how to safely lift an item.
- 2.f. Plan how to safely support a raised item.
- 2.g. Demonstrate how to safely lift an item with a jack.
- 2.h. Demonstrate how to safely support a raised item.

3. Identify facility safety procedures.

Assessment Strategies

- 3.1. Written objective test
- 3.2. Skill demonstration

Criteria

You will know you are successful when:

- 3.1. you perform a shop safety inspection.
- 3.2. you demonstrate proper fire safety procedures.
- 3.3. you illustrate building evacuation procedures for different emergencies.
- 3.4. you identify proper storage of hazardous materials.
- 3.5. you identify proper lock out and tag out procedures.

Learning Objectives

- 3.a. Identify hazards in the shop area.
- 3.b. Locate all fire extinguishers in shop.
- 3.c. Locate all first aid kits in the shop.
- 3.d. Locate eye wash stations for proper operation.
- 3.e. Identify the proper fire extinguisher to use for different fires.
- 3.f. Demonstrate the PASS method of fire extinguisher discharge.
- 3.g. Identify hazardous wastes in the shop.

- 3.h. Determine the best way to store hazardous materials.
- 3.i. Demonstrate how to properly lock out and tag out a piece of equipment.
- 3.j. Identify proper ventilation procedures for working within the lab/shop area.
- 3.k. Identify marked safety areas.
- 3.l. Identify the location of the posted evacuation routes.

4. Explore safe tool/equipment operating procedures.

Assessment Strategies

- 4.1. Written objective test
- 4.2. Skill demonstration

Criteria

You will know you are successful when:

- 4.1. you demonstrate safe hand tool use.
- 4.2. you demonstrate proper power tool safety use.
- 4.3. you demonstrate safe hydraulic press operation.
- 4.4. you demonstrate safe forklift operation.
- 4.5. you demonstrate safe part cleaning procedures.

Learning Objectives

- 4.a. Choose the proper hand tool for a task.
- 4.b. Recognize unsafe hand tools in need of repair or replacement.
- 4.c. Set up power tools for cutting, drilling, and grinding procedures.
- 4.d. Secure materials to be drilled, cut and ground.
- 4.e. Set up hydraulic press for safe operation.
- 4.f. Position items in the press for safe press operation.
- 4.g. Recognize proper placement of guards and safety mechanisms on all power tools.
- 4.h. Operate parts cleaning equipment in a safe manner.

5. Compare types of fasteners by application.

Assessment Strategies

- 5.1. Written objective test
- 5.2. Skill demonstration

Criteria

You will know you are successful when:

- 5.1. you identify metric and standard threaded fasteners.
- 5.2. you recognize specific threaded fastener characteristics.
- 5.3. you identify proper fasteners for specific applications.
- 5.4. you recognize different pins for specific applications.
- 5.5. you recognize different retaining rings for specific applications.

Learning Objectives

- 5.a. Identify different grades of metric and standard bolts.
- 5.b. Measure sizes of different metric and standard fasteners.
- 5.c. Identify different grades of standard and metric nuts.
- 5.d. Identify internal and external retaining rings.

6. Perform common shop practices and procedures.

Assessment Strategies

- 6.1. Written objective test
- 6.2. Skill demonstration

Criteria

You will know you are successful when:

- 6.1. you remove broken and corroded fasteners.
- 6.2. you remove, assemble, and reinstall hydraulic hoses.
- 6.3. you remove, assemble, and reinstall steel lines.

6.4. you identify the use of different shop chemicals.

Learning Objectives

- 6.a. Drill out a broken off bolt.
- 6.b. Remove a fastener by applying heat to it.
- 6.c. Repair threads using a thread insert.
- 6.d. Create new threads with a tap and die set.
- 6.e. Build a steel line with double flared ends.
- 6.f. Identify the proper thread locking agent for an application.
- 6.g. Identify the proper thread sealant agent for an application.
- 6.h. Identify the proper sealant/gasket maker for different applications.
- 6.i. Identify the proper anti-corrosive agents for different applications.
- 6.j. Identify the proper cleaning solvent to be used for an application.
- 6.k. Identify the different penetrating lubricant for different applications.

7. Examine employee rights related to OSHA.

Assessment Strategies

- 7.1. Written objective test
- 7.2. Scenario Response

Criteria

You will know you are successful when:

- 7.1. you access information regarding OSHA rights
- 7.2. you demonstrate how to document employer misconduct
- 7.3. you find and list contact information for OSHA
- 7.4. you apply proper OSHA regulations to given scenarios of workplace misconduct
- 7.5. you describe your rights under OSHA

Learning Objectives

- 7.a. Explain the concept of "Right to Complain" and recognize when to apply it in industry
- 7.b. Explain the concept of "Right to know" and recognize when to apply it in industry
- 7.c. Explain the concept of "Right to Review Records" and recognize when to apply it in industry
- 7.d. Comprehend the the right to have a safe and healthful workplace
- 7.e. Access contact information to file a complaint

8. Examine employee rights regarding equal employment opportunity.

Assessment Strategies

- 8.1. Written objective test
- 8.2. Scenario response

Criteria

You will know you are successful when:

- 8.1. you list the different items that you may not be discriminated for
- 8.2. you demonstrate how to document employer misconduct
- 8.3. you find contact information to report employer misconduct
- 8.4. you identify given scenarios that indicate discrimination

Learning Objectives

- 8.a. Explain the importance of the Civil Rights Act of 1964
- 8.b. Explain the importance of the Americans with disabilities act of 1990
- 8.c. Explain the importance of the Age Discrimination Act of 1967
- 8.d. Access contact information to file a complaint

9. Investigate employee rights related to the Family Medical Leave Act of 1993.

Assessment Strategies

- 9.1. Written objective test
- 9.2. Scenario response

Criteria

You will know you are successful when:

- 9.1. you will list his/her rights under FMLA
- 9.2. you will find contact information to report employer misconduct
- 9.3. you will identify given scenerios that indicate employer misconduct under FMLA
- 9.4. you will demonstrate how to document employer misconduct under FMLA

Learning Objectives

- 9.a. Recognize the reasons for taking leave under FMLA
- 9.b. Recognize obligations to employer prior to leave
- 9.c. Recognize job benefits and protection under FMLA
- 9.d. Recognize unlawful acts by employers under FMLA
- 9.e. Access contact information regarding FMLA

10. Explore employee rights related to the Fair Labor Standards Act.

Assessment Strategies

- 10.1. Written objective test
- 10.2. Scenario response

Criteria

You will know you are successful when:

- 10.1. you will list your rights under the fair labor standards act
- 10.2. you will identify given scenerios that indicate employer misconduct under the Fair Labor Standards Act
- 10.3. you will find contact information to report employer misconduct
- 10.4. you will demonstrate how to document employer misconduct regarding the Fair Labor Standards Act

Learning Objectives

- 10.a. Identify the current minimum wage
- 10.b. Identify the rules regarding overtime pay

11. Investigate Occupational Safety and Health Administration regulations.

Assessment Strategies

- 11.1. Written objective test
- 11.2. Scenario response

Criteria

You will know you are successful when:

- 11.1. you will perform a shop inspection and identify unsafe conditions
- 11.2. you will identify components of a MSDS sheet
- 11.3. you will identify local emergency contact information
- 11.4. you will locate contact information for poison control
- 11.5. you will identify given scenerios that indicate unsafe working conditions under OSHA

Learning Objectives

- 11.a. Recognize what unsafe working conditions are under OSHA
- 11.b. Interpret Material Safety Data Sheets

12. Investigate regulations for use, storage and disposal of hazardous materials.

Assessment Strategies

- 12.1. Written objective test
- 12.2. Skill demonstration
- 12.3. Scenario response

Criteria

You will know you are successful when:

- 12.1. you will list criteria that indicates if a material is classified as hazardous for each agency
- 12.2. you will locate contact information for each agency
- 12.3. you will list how to store and dispose of hazardous materials according to each agencies policies

Learning Objectives

- 12.a. Investigate Environmental Protection Agency regulations.
- 12.b. Access resources regarding EPA regulations.

- 12.c. Investigate Wisconsin Department of Natural Resources regulations.
- 12.d. Access resources regarding Wisconsin Department of Natural Resources regulations.
- 12.e. Investigate Wisconsin Department of Agriculture regulations.
- 12.f. Access resources regarding Wisconsin Department of Agriculture regulations.