Northwest State Community College  
Course Information Sheet

# Course Information

Title: Hazardous Materials

Course Number: INT111

Credit Hours: 1

Pre-requisite: INT110

# Description

This is an introductory course to cover the basics of hazardous materials, Material Safety Data Sheets (MSDS), and the use of lifts and cranes

# Learning Outcomes

Upon completion of this course the students will be able to:

1. Define OSHA Hazard Communication Standard (HAZCOM)
2. Explain the Hazardous Material Identification System
3. Describe how to use Safety Data Sheets (SDS)
4. Describe safety practices for operating a lift or crane system
5. Identify unsafe conditions that affect a lift or crane system

# Required Material

**Text:**

Occupational Safety & Health, by Graham and Rowley. ISBN 9780826935700

**Supplies:**

Safety glasses

Safety gloves

# Hazardous Materials Module 1: Machine Safeguards

Moving machine part have the potential to cause severe injuries, such as crushed fingers or hands, amputations, and burns. Machine safeguards are an essential means of controlling these injuries. Any mechanical part, function, or process that may cause injury must be safeguarded. OSHA has several standards devoted to safeguarding machinery. To effectively implement mechanical safeguards, a through hazard analysis must be done to identify hazards. Understanding how a machine functions and knowledge of the different types of safeguards available are essential when designing a safe and productive working environment.

Upon completion of this module the student will be able to:

1. Identify areas of the machine that require safeguarding.
2. Identify the regulations and standards that cover machine safeguarding.
3. Explain how machine can be safeguarded using location and distance.
4. Describe the different types of motions and actions of a machine.
5. List the different types of protection devices used to safeguard machines.

### Module 1 Activities

Top of Form

 Read Occupational Safety and Health, Chapter 11 - Machine Safeguards

Text Book

 Read OSHA Machine Safeguarding Basics

<https://www.oshacademy.com/courses/list/154-machine-guarding-basic.html>

 Watch video: Machine Guarding (10:44)

<https://www.youtube.com/watch?v=-BEATC9-mKQ>

 Complete Quiz 111-1

See Quiz INT111-1 Content Packaging files to upload into an LMS System

 Review Hands-on Lab 111-1.1

See Lab Document

 Complete Hands-on Lab 111-1.1

See INT111 1.1 Lab Document

# Hazardous Materials Module 2: Material and Hazardous Material Handling

Material handling is a part of many jobs, particularly in the construction and manufacturing industry. Manual material handling involves an employee lifting and caring equipment. Injuries commonly occur from overexertion. Determining the causes of overexertion and implementing proper material handling procedure can greatly reduce the frequency and severity of injuries. Mechanical material handling involves the use of equipment to reduce loads. Understanding equipment operation and proper inspection of the equipment is essential to reduce hazards associated with material handling.

Upon completion of this module the student will be able to:

1. Describe the different types of material.
2. List the regulations and standards that cover material handling.
3. Identify the types of equipment used to move materials mechanically.
4. Describe the different types of sling and sling attachments.
5. List the hazard controls used in material handling.
6. List the points of inspection of rigging equipment.
7. Describe proper storage procedures for rigging equipment.
8. List the factors that must be considered when lifting a load.

### Module 2 Activities

Top of Form

 Read Occupational Safety and Health, Chapter 12

Text Book

 Review PowerPoint: Hazmat Safety

<https://engineering.uci.edu/files/Hazardous_Materials.pdf>

 Watch video: Rigging Basics (6:21)

<https://www.youtube.com/watch?v=NuuTd_dJM9E>

 Watch video: Rigging Equipment Safety (7:34)

<https://www.youtube.com/watch?v=GUfLhKCHkVw>

 Complete Quiz 111-2

See Quiz INT111-2 Content Packaging files to upload into an LMS System

 Review Hands-on Lab 111-2.1

See Lab Document

 Complete Hands-on Lab 111-2.1

See INT111 2.1 Lab Document

# Hazardous Materials Module 3: Control of Hazardous Energy

Workers performing service or maintenance on machines or equipment may be exposed to injuries from unexpected startup of machinery or equipment or release of stored energy. The primary means of controlling hazardous energy through lock / out tag out, a program that contains procedure to prevent employee exposed to uncontrolled energy. Approximately three million workers, including craft works, machine operators and laborers who service equipment, face the risk of energy hazards are not controlled and lockout/tagout programs are not properly implemented.

Upon completion of this module the student will be able to:

1. Define energy.
2. Identify the regulation and standards for the control of hazardous energy.
3. Identify the different types of hazardous energy
4. List the steps to de-energize equipment until a zero energy state is verified.
5. List the steps used to apply lockout/tagout.
6. List the steps to remove lockout/tagout.
7. List content requirements for energy control program.

### Module 3 Activities

Top of Form

 Read Occupational Safety and Health, Chapter 13

Text Book

 Watch video: Master Lock OSHA Lockout Tagout (11:51)

<https://www.youtube.com/watch?v=is77KiZ16_o>

 Review OSHA Lockout/Tagout Tutorial

<https://www.osha.gov/etools/lockout-tagout/tutorial>

 Optional - Review website: National Fire Protection Association - US Fire Problem

[https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports?l=124#aq=%40culture%3D%22en%22&cq=%40taglistingpage%3D%3D(%22Fire%20Statistics%22)%20%20&numberOfResults=12&sortCriteria=%40publicationdate%20descending](https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports?l=124%23aq=%40culture%3D%22en%22&cq=%40taglistingpage%3D%3D(%22Fire%20Statistics%22)%20%20&numberOfResults=12&sortCriteria=%40publicationdate%20descending)

 Complete Quiz 111-3

See Quiz INT111-3 Content Packaging files to upload into an LMS System

 Review Hands-on Lab 111-3.1

See Lab Document

 Complete Hands-on Lab 111-3.1

See INT111 3.1 Lab Document

Bottom of Form

# Hazardous Materials Module 4: Hazardous Materials and Safety Data Sheets

Hazardous materials are used throughout all industries. Understanding the hazards of these materials is essential when developing, implementing, and maintaining a comprehensive safety program. A chemical safety and life cycle management program is used to manage hazardous materials from initial acquisition through storage, use, transportation, disposal, and cleanup activities.

Upon completion of this module the student will be able to:

1. Define hazardous materials
2. Identify regulations and standards for hazardous materials
3. Identify health hazards involving hazardous materials
4. Identify physical hazards involving hazardous materials
5. Explain the purpose of a chemical safety and life cycle management program

### Module 4 Activities

Top of Form

 Read Occupational Safety and Health, Chapter 16 - Hazardous Materials Management

Text Book

 Review OSHA Safety Data Sheet Quick Card

<https://www.osha.gov/sites/default/files/publications/OSHA3493QuickCardSafetyDataSheet.pdf>

 Watch video: Safety Data Sheets (SDS) for Hazardous Chemicals (5:02)

<https://www.youtube.com/watch?v=hRmOgJVNCA0>

 Complete Quiz 111-4

See Quiz INT111-4 Content Packaging files to upload into an LMS System

 Review Hands-on Lab 111-4.1

See Lab Document

 Complete Hands-on Lab 111-4.1

See INT110 4.1 Lab Document

Bottom of Form

******

**DOL DISCLAIMER:**

**“This workforce product was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The U.S. Department of Labor makes no guarantees, warranties, or assurances of**

**any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This product is copyrighted by the institution that created it.”**

 This work is licensed under a [Creative Commons Attribution 4.0 International License.](http://creativecommons.org/licenses/by/4.0/)

Bottom of Form

Bottom of Form