

WAREHOUSE OPERATIONS AND MATERIALS HANDLING

Warehouse Operations and Materials Handling introduces the physical components of finished product handling. The focus is on the methods, mechanical equipment, systems and related controls used to achieve these functions. Topics covered include product receiving, storage methods, order picking, inventory control, lean concepts, packaging, and palletizing. Operating and maintaining material handling equipment in a safe and efficient manner in an industrial setting is stressed. The course applies these concepts to develop a work environment that promotes continuous improvement, eliminates waste, reduces operating cost, improves quality, and achieves measurable improvement in customer satisfaction.

- DOE Code: 5602
- Recommended Grade Level: Grade 11-12
- Recommended Prerequisites: None
- Credits: 2-3 credits per semester, maximum of 6 credits
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- This course is aligned with postsecondary courses for Dual Credit:
 - Ivy Tech
 - ADMF 115-Materials and Processes for Manufacturing

Dual Credit

This course provides the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

Application of Content and Multiple Hour Offerings

Intensive laboratory applications are a component of this course and may be either school based or work based or a combination of the two. Work-based learning experiences should be in a closely related industry setting. Instructors shall have a standards-based training plan for students participating in work-based learning experiences. When a course is offered for multiple hours per semester, the amount of laboratory application or work-based learning needs to be increased proportionally.

Career and Technical Student Organizations (CTSOs)

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in SkillsUSA, the CTSO for this area.

Content Standards

Domain – Material Handling Equipment

Core Standard 1 Students select the correct material handling equipment to safely and efficiently load, unload and store materials.

Standards

- WO-1.1 Identify the different types of material handling equipment
- WO-1.2 Operate the material handling equipment used in distribution centers and warehouses
- WO-1.3 Repair and maintain the material handling systems found in the facility

Domain – Storage Equipment

Core Standard 2 Students analyze the product’s storage requirements and apply the criteria to select the proper storage site and method.

Standards

- WO-2.1 Establish the equipment storage needs for a product
- WO-2.2 Recognize and properly handle and store products based on their regulatory labeling
- WO-2.3 Determine and justify the placement of a product based on consumer demand

Domain – Inventory Management

Core Standard 3 Students apply concepts of inventory control using industry standard systems, to reproduce and troubleshoot systems.

Standards

- WO-3.1 Use bar code scanners and software to establish and validate inventory
- WO-3.2 Identify the parts of a Radio Frequency Identification system
- WO-3.3 Explain how the radio wave reacts in a RFID system
- WO-3.4 Interpret and modify RFID tag information

Domain – Lean Principles

Core Standard 4 Students apply and adapt lean concepts in a warehouse or distribution facility to improve operations.

Standards

- WO-4.1 Make comparisons of conventional operating concepts and philosophies in both service/supply industries to Lean concepts
- WO-4.2 Demonstrate an understanding of the basic terms, disciplines, and concepts of Lean manufacturing
- WO-4.3 Perform the ability to define, develop, and illustrate the disciplines of value stream mapping
- WO-4.4 Identify the sources and types of waste-streams in a manufacturing or service/supply environment
- WO-4.5 Define and identify the differences between value-added and non-value activities
- WO-4.6 Identify and explain the major advantages of Lean over conventional operating methods
- WO-4.7 Explain the principles of pull systems
- WO-4.8 Define methodologies required to achieve continuous improvement
- WO-4.9 Define the importance and need for making a commitment to achieve the implementation of Lean disciplines
- WO-4.10 Examine concepts and processes that allow distribution and warehousing facilities the ability to remain competitive in global markets

Domain –Order Fulfillment

Core Standard 5 Students analyze procedures for getting orders together to improve the process.

- WO-5.1 Create a plan for retrieving the items

- WO-5.2 Physically picking the items (either automatically or manually)
- WO-5.3 Demonstrate procedures for sorting items
- WO-5.4 Package orders for delivery