



Western Technical College

31409311 Fundamentals of Woodworking

Course Outcome Summary

Course Information

Description	This course introduces students to concepts that include wood identification, stationary and portable woodworking equipment operations and safety, the lumber milling process, joinery used in woodworking and general shop safety operations.
Career Cluster	Architecture and Construction
Instructional Level	Technical Diploma Courses
Total Credits	2
Total Hours	72

Textbooks

No textbook required.

Learner Supplies

Safety glasses with side eye protection that meet Z87 OSHA guidelines. **Vendor:** Campus Shop. Required.

25' - 1" tape measure. **Vendor:** To be discussed in class. Required.

Proper work boots - \$35.00-75.00. **Vendor:** To be discussed in class. Required.

Scientific Calculator - \$20. **Vendor:** Campus Shop. Required.

Program Outcomes

1. Use hand and power tools and equipment.
2. Apply industry recognized safety practices and procedures.
3. Calculate the cost of a project.
4. Recommend a plan of procedure to eliminate wasted time and materials.
5. Demonstrate industry cabinetmaking practices and material application.

Course Competencies

1. Demonstrate safe use of all stationary and portable shop equipment.

Assessment Strategies

- 1.1. On-the-job Performance
- 1.2. Skill Demonstration

Criteria

You will know you are successful when

- 1.1. you use stationary power equipment safely, preventing bodily injury to himself/herself and others
- 1.2. you use portable power equipment safely, preventing bodily injury to himself/herself and others
- 1.3. you perform shop operations in a manner to prevent the abuse or destruction of portable and stationary equipment

Learning Objectives

- 1.a. Use the radial arm saw, jointer, planer, table saw, band saw, drill press, wide belt sander, and chop saw in a safe and effective manner
- 1.b. Use portable sanders, biscuit jointers, routers, drills, finishing systems, and hand tools in a safe and effective manner.
- 1.c. Observe all shop safety guidelines

2. Perform shop operations using proper measuring and layout techniques.

Assessment Strategies

- 2.1. Skill Demonstration
- 2.2. Written Objective Test (score 70% or higher)

Criteria

You will know you are successful when

- 2.1. you produce a product that is square
- 2.2. you produce a product that meets size requirements
- 2.3. you produce a quality product that meets the required specifications

Learning Objectives

- 2.a. Demonstrate proper use of combination square, try-square, speed square, and compass to perform accurate layout operations
- 2.b. Demonstrate proper use of tape measure, folding rule, and equipment scales to correctly size components
- 2.c. Apply various squaring techniques to create a quality product

3. Identify wood characteristics and defects.

Assessment Strategies

- 3.1. On-the-job Performance

Criteria

You will know you are successful when

- 3.1. you yield the maximum amount of lumber without defects
- 3.2. you feed lumber into equipment properly based on grain direction
- 3.3. you produce stock that is straight, flat, and of uniform thickness and width

Learning Objectives

- 3.a. Examine a piece of lumber to maximize yield
- 3.b. Identify various wood defects
- 3.c. Identify the grain direction of lumber

4. Produce finish quality stock from rough-sawn lumber.

Assessment Strategies

- 4.1. Skill Demonstration
- 4.2. On-the-job Performance

Criteria

You will know you are successful when

- 4.1. you create two parallel, flat faces by removing all cups and bows in the board with the use the jointer and planer in the proper sequence
- 4.2. you create two parallel edges on the board that are at a 90 degree angle to the face of the board using the jointer and table saw in the proper sequence
- 4.3. you reduce the board to the specified thickness and removes all mill/machine marks from both faces with the wide belt sander
- 4.4. you cut the board to the specified length with each end cut square across the width and through the thickness of the board with the chop saw
- 4.5. you produce a finished product free of defects

Learning Objectives

- 4.a. Face and plane a board to desired thickness to create two flat, parallel faces
- 4.b. Joint the edge and rip a board to desired width to create two parallel edges
- 4.c. Sand a board to specified thickness, removing all mill marks
- 4.d. Cut board to specified length

5. Produce various woodworking joints.

Assessment Strategies

- 5.1. Skill Demonstration
- 5.2. On-the-job Performance

Criteria

You will know you are successful when

- 5.1. you create woodworking joints as specified using necessary equipment, jigs, and fixtures
- 5.2. you create all assigned woodworking joints as specified, meeting tolerance requirements
- 5.3. you use woodworking joints to produce what has been designed

Learning Objectives

- 5.a. Set up equipment, jigs, and fixtures to create various woodworking joints
- 5.b. Utilitze shop equipment to produce a rabbet, dado, miter, dovetail, half-lap, dowel, biscuit, and pocket-hole wood working joint
- 5.c. Create woodworking joints that meet specified tolerances

6. Apply various gluing and clamping methods.

Assessment Strategies

- 6.1. Skill Demonstration
- 6.2. On-the-job Performance

Criteria

You will know you are successful when

- 6.1. you produce a multiple board assembly with proper wood grain orientation
- 6.2. you apply the proper amount of glue to ensure a strong connection
- 6.3. you use appropriate clamps and clamping pressure to successfully hold joint in place until the glue is set
- 6.4. you produce a multiple board assembly that is flat, durable, and meets specified aesthetic qualities

Learning Objectives

- 6.a. Align grain patterns in a multiple board assembly
- 6.b. Apply glue
- 6.c. Utilitze appropriate clamps and clamping pressure for certain applications