

STRANDS AND STANDARDS

WOODWORKING



Course Description

This is the first instructional course in a sequence that prepares individuals to apply technical knowledge and skills to lay out and shape stock; assemble projects; saw and sand projects; and stresses the safe use of a variety of hand and power tools and machinery. Recommended projects would be anything that would allow students to incorporate all joints and tools, e.g. a nightstand.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.10.00.00.120
Concurrent Enrollment Core Code	40.10.00.13.120
Prerequisite	None
Skill Certification Test Number	520
Test Weight	0.5
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Cabinetmaking/Millwork
Endorsement 2	N/A
Endorsement 3	N/A



STRAND 1

Students will understand woodworking design and theory.

Standard 1

Understand basic elements of the woodworking industry.

- Identify career opportunities in cabinetmaking/millwork manufacturing.
- Identify career opportunities in related millwork industries by using career pathways.
- Soft Skills Ethics: be on time, etc.

Standard 2

Understand basic plan elements.

- Read and use a scale drawing to create a project.
- Use a material list.
- Use a procedure list.

Standard 3

Understand and demonstrate basic math and measuring concepts.

- Add two- and three-digit numbers.
- Subtract two-, three-, and four-digit numbers.
- Solve two-digit divisor numbers.
- Multiply a two-digit factor.
- Add, subtract, multiply, and divide fractions and mixed numbers.
- Convert fractions to decimals.
- Reduce fractions.
- Add, subtract, multiply, and divide decimal numbers.
- Calculate percentages and basic ratios.
- Add and subtract linear measurement in feet and inches.
- Use a ruler or measuring tape to measure within a sixteenth ($1/16$) of an inch.

Performance Skill

Understand woodworking design and theory.

- Understand basic elements of the woodworking industry.
- Understand basic plan elements.
- Understand and demonstrate basic math and measuring concepts.

STRAND 2

Students will understand and demonstrate the safe use of woodworking tools.

Standard 1

Understand and demonstrate the safe use of hand tools.

WOODWORKING

- Describe the purpose and demonstrate the proper use of the following measuring and layout tools:
 - Measuring tape
 - Scratch awl
 - Framing square
 - Combination square
 - Try square
- Describe the purpose and demonstrate the proper use of the following cutting and shaping tools:
 - Hand plane
 - Wood chisel
 - Wood file/rasp
 - Hand saw
 - Glue scraper
 - Putty knife
- Describe the purpose and demonstrate the proper use of the following striking tools:
 - Claw hammer
 - Nail set
 - Dead-blow hammer
- Describe the purpose and demonstrate the proper use of the following drill bits:
 - Twist
 - Multi-spur bit
 - Spade
 - Countersink
 - Driver bits: Phillips, Square, Flat

Standard 2

Understand and demonstrate the safe use of portable power tools.

- Describe the purpose and demonstrate the proper use of the following portable power tools:
 - Pneumatic/power nail gun
 - Power drills
 - Router
 - Finish sander
 - Orbital sander

Standard 3

Understand and demonstrate the safe use of power machines.

- Describe the purpose and demonstrate the proper use of the following sawing machines:
 - Table saw

- Power miter saw
- Band saw
- Describe the purpose and demonstrate the proper use of the following surfacing machines:
 - Surface planer
 - Jointer
- Describe the purpose and demonstrate the proper use of the following sanding machines:
 - Disc sander
 - Wide belt sander
 - Spindle sander
 - Edge sander
- Describe the purpose and demonstrate the proper use of the following shaping machines:
 - Router table
 - Shaper
- Describe the purpose and demonstrate the proper use of the following drilling machine:
 - Drill press

Performance Skill

Understand and demonstrate the safe use of woodworking tools.

- Understand and demonstrate the safe use of hand tools.
- Understand and demonstrate the safe use of portable power tools.
- Understand and demonstrate the safe use of power machines.

STRAND 3

Students will understand processing materials.

Standard 1

Understand and demonstrate safe practices.

- Demonstrate the ability to work safely in a cabinet shop following general safety rules.
- Demonstrate the safe use of woodworking tools and machines.
- Define SDS and know its purpose.
- Pass a written safety test with a score of 100 percent.

Standard 2

Understand and demonstrate the use of fasteners and adhesives.

- Identify the various woodworking fasteners and the application of each.
 - Nails
 - Screws
 - Staples

- Properly use an adhesive in the construction of a project.
- Identify the different types of clamps.
 - Bar
 - “C”
 - Spring
 - Handscrew

Standard 3

Understand wood products, characteristics, and procedures.

- Identify softwoods.
 - Pine, red cedar
- Identify hardwoods.
 - Cherry, oak, alder, walnut, maple

Standard 4

Identify common manufactured materials.

- Plywood
- Particle board
- MDF

Performance Skill

Understand processing materials.

- Understand and demonstrate safe practices.
- Understand and demonstrate the use of fasteners and adhesives.
- Understand wood products, characteristics, and procedures.
- Identify common manufactured materials.

STRAND 4

Students will understand milling and assembly.

Standard 1

Understand and demonstrate the use of joinery.

- Identify the basic woodworking joints.
 - Butt
 - Miter
 - Rabbet
 - Dado
- Construct a basic woodworking project using basic joints.

Standard 2

Understand and demonstrate the use of project components and hardware.

- Complete a project.

- Identify common cabinet/furniture hardware.
 - Hinges – overlay, butt
 - Drawer guides (wood or metal)
 - Knobs and pulls

Standard 3

Understand and demonstrate sanding and finishing techniques.

- Understand and properly apply the basic rules of sanding.
- Properly prepare a surface for finishing.
- Understand application methods of stain and clear finishes.

Performance Skill

Understand milling and assembly.

- Understand and demonstrate the use of joinery.
- Understand and demonstrate the use of project components and hardware.
- Understand and demonstrate sanding and finishing techniques.

STRAND 5

Students will be able to perform automated manufacturing processes using CNC equipment.

Standard 1

Understand X, Y, Z axis.

Standard 2

Understand vector lines.

Standard 3

Define G-code.

Standard 4

Create a tool path.

Standard 5

Use a CNC machine to make a cut.

Performance Skill

Perform automated manufacturing processes using CNC equipment.

- Understand X, Y, Z axis.
- Understand vector lines.
- Define G-code.
- Create a tool path.
- Use a CNC machine to make a cut.

STRAND 6

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 1.

Standard 1

Understand and demonstrate the attitude of cooperation.

- Develop awareness of cultural diversity and equality issues.
- Demonstrate effective communication with others.
- Apply team skills to a group project.
- Identify and apply conflict resolution skills.

Standard 2

Understand and demonstrate the ability of being resourceful and innovative.

- Discover self-motivation techniques and establish short-term goals.
- Measure/modify short-term goals.
- Review a professional journal and develop a three- to five-minute presentation.

Standard 3

Plan for your future career.

- Complete a self-assessment and identify individual learning styles.
- Define future occupations.
- Identify the components of an employment portfolio.
- List proficiency in program competencies.
- Complete a survey for employment opportunities.
- Create a job application.
- Assemble your employment portfolio.
- Employability skills: evaluate program comprehension.

Standard 4

Understand and demonstrate the ability to manage a project.

- Apply team skills to a group project.
- Observe and critique a meeting.
- Demonstrate business meeting skills.
- Explore supervisory and management roles in an organization.
- Identify and apply conflict resolution skills.
- Demonstrate evaluation skills.
- Manage a project and evaluate others.

Skill Certificate Test Points by Strand

Test Name	Test #	Number of Test Points by Strand						Total Points	Total Questions
		1	2	3	4	5	6		
Woodworking	520	11	22	11	17	5	0	66	66