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.

License Type
CTE and/or Secondary Education 6-12

Required Endorsement
Cabinetmaking/Millwork

Intended Grade Level: 10-12
Units of Credit: 0.5
Core Code: 40.10.00.00.120
CE Core Code: N/A
Prerequisite: None
Skill Certification: 520
Test Weight: 0.5
Strands & Standards

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.

STRAND 2  Students will understand and demonstrate the safe use of woodworking tools.

Standard 1  Understand and demonstrate the safe use of hand tools.
- Describe the purpose and demonstrate the proper use of the following measuring and layout tools:
  o Measuring tape
  o Scratch awl
  o Framing square
  o Combination square
  o Try square
- Describe the purpose and demonstrate the proper use of the following cutting and shaping tools:
  o Hand plane
  o Wood chisel
  o Wood file/rasp
  o Hand saw
  o Glue scraper
  o Putty knife
- Describe the purpose and demonstrate the proper use of the following striking tools:
  o Claw hammer
  o Nail set
  o Dead-blow hammer
- Describe the purpose and demonstrate the proper use of the following drill bits:
  o Twist
  o Multi spur bit
  o Spade
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 machines:
  - Drill press

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 and characteristics and procedures.
- Identify softwoods.
Woodworking

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

**Standard 4** Identify common manufactured materials.
- Plywood
- Particle board
- MDF

**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.

**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.

**PROFESSIONAL DEVELOPMENT**

**STRAND 6** Students will be able to understand and apply professional development skills in the workplace.

**Standard 1** Understand the need for professional development in school and the workplace.
- Complete a personal inventory.
- Set and meet goals.
- Be self-motivated.
- Know how to make decisions.
- Know how to manage time.
- Organize personal belongings and lab equipment.
- Learn to communicate verbally.
- Write effective communications.
- Establish a personal reading program.
- Develop effective work skills and attitudes.
- Master a working knowledge of SkillsUSA.*
  - Learn the acronym SkillsUSA.
  - State the SkillsUSA motto.
  - State the SkillsUSA creed.
  - Learn the SkillsUSA colors.
  - Describe the official SkillsUSA dress.
  - Describe the procedure for becoming a SkillsUSA officer.

**Standard 2** Understand the need for leadership skills.
- Serve on a committee.
  - Prepare an agenda.
- Assist in planning a meeting.
- Review basic parliamentary procedure.
- Make a main motion.
- Participate in a school project.
- Attend a community meeting.
  - Practice effective speaking.
- Present a three- to five-minute talk.
- Implement a leadership project.
  - Master a working knowledge of SkillsUSA.
  - Describe the meaning of the SkillsUSA emblem.
  - State the SkillsUSA pledge.
  - Describe the duties of a SkillsUSA officer.

**Standard 3** Understand the need for career planning.
- Define your future occupation.
- Survey employment opportunities.
- Report on a trade journal article.
- Explore opportunities for advanced training.
- Conduct a worker interview.
- Contact a professional association.
- Explore entrepreneurship opportunities.
- Give a talk about your career.
- Review career goals.

**Standard 4** Understand the importance of employability skills and workplace habits.
- Develop a list of work standards to follow at school and on the job.
- Evaluate your personal ethics against acceptable workplace ethics.
- Build a job search network.
- Find job leads.
- Write a resume.
- Create a job portfolio.
- Complete a job application.
- Write a business letter and memo.
- Participate in an actual or simulated job interview.

*SkillsUSA PDP requirements - recommended

### Skill Certificate Test Points by Strand

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<tr>
<th>Test Name</th>
<th>Test #</th>
<th>Number of Test Points by Strand</th>
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**Performance Objectives**