Woods 3

Exam Information

Exam number
524

Items
36

Points
38

Prerequisites
Woods 1
Woods 2

Recommended course length
One semester

National Career Cluster
Manufacturing

Architecture & Construction

Performance standards
Included (Optional)

Certificate available
Yes

Description

The Woods 3 industry certification exam assesses learners' ability to apply more advanced technical knowledge and skills to lay out, shape, assemble, and finish projects. The exam evaluates craftsmanship, a production sense, and design principles. Learners demonstrate their understanding of widely accepted and understood design principles.

Exam Blueprint

Standard	Percentage of exam
1. Safety	8%
2. Design Principles	13%
3. Wood Products	39%
4. Develop a Project	13%
5. Automated Manufacturing Processes	13%
6. Professional Development	13%

Standard 1

Students will follow safety practices.

Objective 1 Identify potential safety hazards and follow general laboratory safety practices.

1. Assess workplace conditions regarding safety and health.
2. Identify potential safety issues and align with relevant safety standards to ensure a safe workplace/jobsite.
3. Locate and understand the use of shop safety equipment.
4. Select appropriate personal protective equipment.

Objective 2 Use safe work practices.

1. Use personal protective equipment according to manufacturer rules and regulations.
2. Follow correct procedures when using any hand or power tools.

Objective 3 Complete a basic safety test without errors (100%) before using any tools or shop equipment.

Standard 1 Performance Evaluation included below (Optional)

Standard 2

Students will develop foundational skills in design principles.

Objective 1 Create projects using a working drawing and utilizing a list of materials while demonstrating the safe use of woodworking hand tools and equipment.

Objective 2 Consider form, function, and joinery.

Objective 3 Follow established principles of good design.

For example:

1. Balance/Symmetry
2. Contrast
3. Harmony/Unity
4. Hierarchy/Emphasis
5. Pattern/Repetition
6. Proportion/Scale
7. Space

Objective 4 Explore and compare the elements of established design styles.

For example:

1. Art Deco
2. Federal Period
3. Mission
4. Queen Anne

5. Scandinavian

Standard 2 Performance Evaluation included below (Optional)

Standard 3

Understand wood products, characteristics, and procedures.

Objective 1 Calculate board footage.

1. (Nominal thickness in inches * nominal width in inches * actual length in inches)/144
   OR
2. (Nominal thickness in inches * nominal width in inches * actual length in feet)/12

Objective 2 Describe and identify natural defects.

1. Warp (cut, twist, bow, crook)
2. Cracks
3. Bark inclusions
4. Knots

Objective 3 Identify common grades of lumber and sheet goods.

For example:

1. Hardwoods
   a. FAS – firsts & seconds
   b. F1F – FAS one face
   c. SEL – select
   d. 1C – number 1 common
2. Sheet stock
   a. A
   b. B
   c. C
   d. D

Objective 4 Understand the methods of the seasoning and drying lumber.

1. Standard moisture content levels for kiln and air-dried lumber
2. The effects of moisture on materials (expansion and contraction)

Objective 5 Demonstrate the use of basic joinery techniques.

For example:

1. Spline
2. Mortise & Tenon
3. Lap
4. Blind dado

Objective 6 Demonstrate sanding and finishing techniques.

1. Understand and properly apply the basic rules of sanding
2. Select and correctly use each specified grit size
3. Properly prepare a surface for finishing
4. Properly apply stain, penetrating oil, and/or a clear finish
5. Properly apply a clear coat

Standard 3 Performance Evaluation included below (Optional)

Standard 4

Students will follow a discipline design process to develop a project.

Objective 1 Understand the design, planning, and estimation process.

1. Identify standard furniture dimensions relating to tables, seating, and shelving.
2. Draw/sketch the necessary views of a selected project.
3. Create a material list for the selected project and determine the project cost.

Objective 2 Create a mock-up of the project.

1. Simplify the design where possible.
2. Create a step-by-step plan for creating each element of the design product.

Objective 3 Complete a finished product that showcases the woodworking and design skills developed by the student.

Standard 4 Performance Evaluation included below (Optional)

Standard 5

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

Objective 1 Know and understand basic terms related to CNC machines.

For example:

1. Datum, Absolute Coordinates, and Relative Coordinates
2. Depth of Cut (DoC), Speed, and Feed
3. Tool Path, Cutter Radius, Conventional Milling, and Climb Milling

Objective 2 Configure a CNC machine and program it to cut out or shape the components of an assembly.

Standard 6

Students will investigate future training opportunities and careers in woodworking.

Objective 1 Investigate different types of occupational training.

For example:

1. Trade school
2. Community College
3. University

Objective 2 Recognize the importance of both “hard” and “soft” skills in the workplace.

Woods 3

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of 8 or higher on the rating scale. Students may be encouraged to repeat the objectives until they average 8 or higher.

Student’s Name: _____

Class: _____

Performance standards rating scale

0	Limited skills	2	→	4	Moderate skills	6	→	8	High skills	10

Standard 2 – Design Principles **Score:**

- Complete a finished product that showcases the woodworking and design skills developed by the student

Standard 4 – Develop a Project **Score:**

- Assemble a portfolio of design concepts supporting the design development of the main project for this course

Standard 6 – Professional Development **Score:**

- Demonstrate practice of the *Technology & Engineering Professional Workplace Skills*
- Participate in a significant activity that provides each student with an opportunity to render service to others, employ leadership skills, or demonstrate skills they have learned through this course, preferably through participation in a Career & Technical Student Organization (CTSO) such as SkillsUSA.

Performance standard average score:

Evaluator Name: _____

Evaluator Title: _____

Evaluator Signature: _____

Date: _____