

Woodworking

Course Design

2001-2002

Course Information

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| Organization: | Eastern Arizona College |
| Division: | ITE |
| Course Number: | IAR 101 |
| Title: | Woodworking |
| Credits: | 2 |
| Developed by: | Bill Karlinsey and Larry Woodside |
| Lecture/Lab Ratio: | 1 hour lecture, 3 hours lab per week |
| Transfer Status: | NAU: CM 121 |
| Extended Registration | |
| Class: | yes |
| CIP Code: | 48.0701 |
| Assessment Mode: | Portfolio Assessment |
| Semester Taught: | Fall and spring semesters |
| Gen. Ed. Area: | None |
| Separate Lab: | No |
| Awareness Course: | No |
| Intensive Writing | |
| Course: | No |
| Prerequisites: | 1. None |
| Educational Value: | Students will gain an appreciation of wood and wood products used in daily life. The knowledge of wood and woodworking processes necessary in the training of industrial technical education teachers. For other courses in the curriculum, woodworking is recommended before enrolling in machine woodworking. Skills can be acquired, which will help in many other courses. |
| Goals: | 1. Students will learn the principles of woodworking, joinery, sanding, finishing and appreciating the satisfaction of fine craftsmanship. |
| Description: | History of wood technology, use of tools, safety, construction principles, introduction to wood finishes and other wood processes. Students will be charged for some supplies. |
| Textbooks: | ---. <i>None.</i> This textbook is not required. |

Supplies:

Students will be required to furnish supplies for their own projects.

Competencies and Performance Standards

| 1. Demonstrate safe and proven methods of shop procedures. | | | |
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| <i>Domain--Cognitive</i> | <i>Level--Application</i> | <i>Importance--Essential</i> | <i>Difficulty--Low</i> |
| <p>Criteria--Criteria - Performance will be satisfactory when:</p> <ul style="list-style-type: none"> • learner practices recognized safety procedures in the shop at all times and always uses the prescribed safety equipment. • learner demonstrates an ability and willingness to follow designated procedures. | <p>Conditions--Competence will be demonstrated:</p> <ul style="list-style-type: none"> • by completing assigned projects. • by choosing correct tools for each task and using them correctly. | <p>Learning Objectives:</p> <ol style="list-style-type: none"> Identify the causes of accidents in the wood shop environment. List the safety equipment required in woodshop operations. List the safety rules for each piece of woodshop equipment. Identify the conditions in a shop which could be considered hazardous. | |
| 2. Plan the work procedures for a chosen project. | | | |
| <i>Domain--Cognitive</i> | <i>Level--Evaluation</i> | <i>Importance--Important</i> | <i>Difficulty--High</i> |
| <p>Criteria--Criteria - Performance will be satisfactory when:</p> <ul style="list-style-type: none"> • learner develops an understanding of the planning process. • learner develops working drawings of the project. • learner writes a bill of materials for a chosen project. • learner lists the tools and equipment used to produce the project. • learner writes a step-by-step manufacturing outline to produce the chosen project. | <p>Conditions--Competence will be demonstrated:</p> <ul style="list-style-type: none"> • using the tools and equipment in the EAC wood shop. | <p>Learning Objectives:</p> <ol style="list-style-type: none"> Learn the dimensions of finished lumber. Calculate the board feet of lumber pieces. Plan the working process. Calculate the dimensions of lumber to start a project. Describe the side on the hardware to be used in building the project. | |
| 3. Demonstrate correct procedures for the use of common woodworking hand tools. | | | |
| <i>Domain--Cognitive</i> | <i>Level--Application</i> | <i>Importance--Important</i> | <i>Difficulty--Medium</i> |
| <p>Criteria--Criteria - Performance will be satisfactory when:</p> <ul style="list-style-type: none"> • learner identifies the correct hand tools for each application. • learner demonstrates proficiency in using hand tools safely and effectively. • learner adjusts the settings on certain hand tools correctly. • learner treats hand tools with care. | <p>Conditions--Competence will be demonstrated:</p> <ul style="list-style-type: none"> • using the hand tools and equipment in the EAC wood shop. | <p>Learning Objectives:</p> <ol style="list-style-type: none"> Identify all commonly used woodworking hand tools. Demonstrate installation of blades, belts and cutters. Recognize a tool which is damaged and unsafe. Demonstrate the technique for using each tool. | |

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| <p>4. Set up and operate all of the saws correctly.</p> <p><i>Domain--Psychomotor Level--Practice Importance--Essential Difficulty--Medium</i></p> | | |
| <p>Criteria--Criteria - Performance will be satisfactory when:</p> <ul style="list-style-type: none"> • learner adjusts the tilt angle and the depth of cut on the table saw and the radial arm saw. • learner adjusts the table tilt and changes blades on the band saw. • learner sets the angle on the power miter saw. • learner sets up a dado blade on the table saw. | <p>Conditions--Competence will be demonstrated:</p> <ul style="list-style-type: none"> • using the saws in the EAC wood shop. | <p>Learning Objectives:</p> <ol style="list-style-type: none"> a. Identify the adjustments and the adjustable parts on all the woodworking saws. b. Demonstrate the correct operational procedures for all woodworking saws. c. Demonstrate correct material handling around woodworking saws. d. Make precise cuts on student projects using shop woodworking saws. |
| <p>5. Use the planer, jointer, and router to produce finished surfaces.</p> <p><i>Domain--Psychomotor Level--Practice Importance--Important Difficulty--Medium</i></p> | | |
| <p>Criteria--Criteria - Performance will be satisfactory when:</p> <ul style="list-style-type: none"> • learner correctly adjusts the depth of cut on the planer and jointer.. • learner installs the router bits on the router correctly. • learner demonstrates the correct use of the planer to produce finished surfaces. • learner demonstrates the correct use of the jointer to produce flat, straight edges. • learner demonstrates the correct use of the router to produce correctly contoured surfaces. | <p>Conditions--Competence will be demonstrated:</p> <ul style="list-style-type: none"> • using the planer, jointer, and router in the EAC wood shop. | <p>Learning Objectives:</p> <ol style="list-style-type: none"> a. Know the parts of the woodworking planer, jointer and router. b. Adjust the settings on the planer, jointer and router. c. Select the correct router bit for each job. d. List the safety hazards connected to each of these machines. e. Demonstrate correct operating procedures for the planer, jointer and router. |

| 6. Use the drill press and portable hand drill to drill holes accurately. | | | |
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| <i>Domain--Psychomotor</i> | <i>Level--Practice</i> | <i>Importance--Important</i> | <i>Difficulty--Medium</i> |
| <p>Criteria--Criteria - Performance will be satisfactory when:</p> <ul style="list-style-type: none"> • learner identifies the parts of a drill press. • learner lists the safety hazards in using drills. • learner identifies a dull drill bit. • learner recognizes a correctly sharpened drill. • learner selects the correct drill press for each job. • learner demonstrates the correct use of the spade drill, twist drill, hole saws and forstner bits. | <p>Conditions--Competence will be demonstrated:</p> <ul style="list-style-type: none"> • using the drills and the drilling equipment in the EAC wood shop. | <p>Learning Objectives:</p> <ol style="list-style-type: none"> Know the terms associated with all kinds of drilling cutters. Install drill bits in each of the drilling machines. Know the safety hazards connected with each drilling machine. Adjust the drilling machines correctly. Know how to change spindle speeds on a drill press and drill. Know how to use a hand drill safely in forward and reserve positions. Calculate drilling spindle speeds. | |
| 7. Demonstrate correct procedures for gluing, sanding and finishing. | | | |
| <i>Domain--Psychomotor</i> | <i>Level--Practice</i> | <i>Importance--Useful</i> | <i>Difficulty--Medium</i> |
| <p>Criteria--Criteria - Performance will be satisfactory when:</p> <ul style="list-style-type: none"> • learner correctly installs sanding belts. • learner correctly adjusts sanding machines. • learner demonstrates the proper gluing procedures. • learner demonstrates drum sander, belt sander, disk sander and portable orbital sanders correctly. • learner chooses types of sanding belts for the job at hand. • learner chooses the correct type of glue for the job at hand. • learner demonstrates the application of sealer and finish to completed project. | <p>Conditions--Competence will be demonstrated:</p> <ul style="list-style-type: none"> • using the sanding and finishing equipment in the EAC wood shop. | <p>Learning Objectives:</p> <ol style="list-style-type: none"> Identify the types of glue and glue joints. List the advantages and disadvantages of each type of glue joint. List the different types of sanding abrasives and their advantages and disadvantages. List the different kinds of sanding equipment and their advantages and disadvantages. List the types of finishes available for woodworking and their most important applications. | |

Types of Instruction

Lecture

Lab

Grading Policy

Evaluation Methods: Students are graded on their student projects, their attendance and their attitude. Final evaluation is summarized in a student portfolio.

Student projects=75%

Attendance=15%

Attitude=10%

Grading Scale:

| Grade | Requirement |
|------------------|--|
| A | 89-100% |
| B | 79-88% |
| C | 69-78% |
| D | 59-68% |
| F | 58% or lower |
| Pass/Fail | 59% or higher will be passing. 58% or lower will be a failing grade. |

Learning Plans

Learning Plan 1-- Woodworking

Overview: Wood and woodworking processes.

Competency: 1. **Demonstrate safe and proven methods of shop procedures.**

Competency: 2. **Plan the work procedures for a chosen project.**

Competency: 3. **Demonstrate correct procedures for the use of common woodworking hand tools.**

Competency: 4. **Set up and operate all of the saws correctly.**

Competency: 5. **Use the planer, jointer, and router to produce finished surfaces.**

Competency: 6. **Use the drill press and portable hand drill to drill holes accurately.**

Competency: 7. **Demonstrate correct procedures for gluing, sanding and finishing.**

Learning Activities:

_____1. Read the information sheets given out by the instructor.

_____2. Participate in a discussion of this material.

_____3. Participate in the demonstration of the assigned process.

_____4. Practice to develop skills in the assigned process.

_____5. Complete the assigned project.

Performance

Assessment Activities:

_____1. Complete the assigned project and turn it in for evaluation.