Course Syllabus for Wood 2

Course Title: Woodworking 2 8/21/06

Instructor: Cary Haakenson

Prerequisite: Exploratory Wood

Textbook: none

Course Value: .5 unit – 1 Semester

Purpose: The purpose of this course is to give students an introduction to machine woodworking. Areas of emphasis are machine operation, safety, project construction, and mass production. Emphasis is placed on proper planning, processing, and problem solving in a manufacturing setting.

Course Outcomes: The student will:

1. Know all safety rules related to machines
2. Operate all the machines listed above.
3. Read for understanding a simple two-view working drawing.
4. Understand the purpose of a process sheet and be able to follow effectively the steps on a process sheet
5. Create a process sheet for a single piece of wood
6. Read effectively a scale with 1/64 inch graduations
7. Know and effectively use basic wood terminology: face, edge, length, ripping, etc.
8. Use appropriate problem solving techniques.
9. Work cooperatively with others.

Related Careers: carpentry, construction trades, home remodeling

Course Goals: The student will leave with:

1. Transferable skills which will be usable in many fields and applications.
2. A better knowledge of what gifts of interest and ability God has given to him/her.
3. A better knowledge and confidence in "how to learn".

School Exit Outcomes

#2. The students will develop their critical thinking and problem solving skills as they work through the
process of designing a project, creating a step-by-step process sheet for making the project, and then building the project.
#3. Effective communication and cooperative working skills will be enhanced as students complete a mass production project.
#4. The skills learned in this course will serve as a basis for safe and meaningful experiences in further classes, work places, and home recreational pursuits.
#5. As students work through the projects they will discover and develop any special interests, skills, and/or talents and abilities in the field of woodworking which they may use in service to their Lord.

#6. Students will enhance their technological literacy as they use a computer-driven lathe to complete a CNC project.

#7. By constructing a variety of projects, the students will explore possible areas for career or hobby.

Department Outcomes

1. The students will apply the problem-solving process to challenging situations.

2. The students will work cooperatively and assist others in a common goal, resolve differences in a productive manner, and respect and adapt to differences in others.

3. The students will become self-directed learners who recognize the need to adapt to rapidly changing technologies, identify their own personal abilities and interests, develop their gifts, and use their abilities and interests for God-pleasing recreation.

4. The students will use their gifts in service to the Kingdom, practice stewardship of natural resources, and who practice safe work habits.

5. The students will explore technologies and produce products with high quality standards.

6. The students will be effective communicators who follow verbal and written directions and who communicate clearly and precisely.

COURSE OUTLINE

Unit 1: Mantle Clock

- Review machines: circle saw, jointer, planer, drill press, stationary sanders, scroll saw, band saw
- Introduce machines : radial arm, table router, lathe
- Review use of pattern (construction paper), jig
- Introduce joinery / joint considerations
- Review finishing
    1. Purpose: protection, beauty, sealing
    2. Type: penetrating oil, characteristics, application requirements
- Drawing reading
    1. Determination of sizes of pieces (T x W x L)
    2. Grain direction considerations
- Process sheet (purpose, emphasis on "checks")

Number of days: 25 - 30
S.O.: 3, 5, 6, 7
D.O.: 1.1, 2.1, 3.4, 3.5, 3.6, 4.3, 4.4, 5.1, 5.4, 6.1, 6.2, 6.3
W.S.S.: B.12.2, B.12.3, B.12.7

Unit 2: Pen Desk Set/CNC Lathe Project

- Review of machine parts, drawing reading, use of process sheet
- Introduction of gluing process
    1. Purpose
    2. Processing steps and gluing checks
- Introduction of top finish
    1. Purpose
    2. Processing steps - brushing techniques, cleaning steps, use of tack cloth, etc.
- Review of forming process and processing techniques for plastic
    1. Cutting, drilling, and finishing
    2. Forming, use of strip heater
- Review of computer-aided machining terminology (CAD/CAM/CNC)
- Introduction to processing using MasterCAM program

Number of days: 25 - 30

S.O.: 3, 5, 6, 7
D.O.: 1.1, 2.4, 3.4, 3.5, 4.3, 4.4, 5.1, 5.4, 6.1, 6.2
W.S.S.: B.12.2, B12.3, B.12.7

Unit 3: Cutting Board

- Review of machines
- Review of gluing process

- Introduction of design principles
- Application of knowledge of drawing, reading, and process sheet
- Create a process sheet and drawing

Number of days: 15 - 20
S.O.: 3, 5, 6, 7
D.O.: 1.1, 2.1, 2.4, 3.4, 3.5, 4.3, 4.4, 5.1, 5.4, 6.1, 6.2
W.S.S.: C.12.4, C.12.6

Performance Assessment

Students will receive letter grades for quizzes and tests given throughout each semester. Projects are graded individually, based on criteria established and printed on the project grading sheet. A semester exam is also written at the end of each semester.

Instructional Strategies

1. Lecture 10%

2. One-on-one and small group 60%

3. Demonstration 30%

Grading

1. Projects 80%
2. Quizzes 5%
3. Exam 15%

APPENDIX:

COURSE: WOODWORKING 2
INSTRUCTOR: Lee Westphal

Unit 1 Mantle Clock

1.1 Apply the problem-solving process to challenging situations
2.1 Assist others in a common goal
3.4 Develop their gifts
3.5 Use abilities and interests for God-pleasing recreation
4.3 Practice Christian stewardship of natural resources
4.4 Recognize and practice effective work habits
5.1 Apply mathematical and scientific principles to industrial applications
5.4 Produce products with high quality standards
6.1 Follow verbal and written directions
6.2 Communicate clearly and precisely
6.3 Read technical literature and/or drawings effectively

Unit 2 Pen Desk Set

1.1 Apply the problem-solving process to challenging situations
2.4 Encourage others
3.4 Develop their gifts
3.5 Use abilities and interests for God-pleasing recreation
4.3 Practice Christian stewardship of natural resources
4.4 Recognize and practice effective work habits
5.1 Apply mathematical and scientific principles to industrial applications
5.4 Produce products with high quality standards
6.1 Follow verbal and written directions
6.2 Communicate clearly and precisely

Unit 3 Cutting Board

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2.1 Assist others in a common goal
2.4 Encourage others
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WISCONSIN STATE STANDARDS

Unit 1

B2 Demonstrate how systems are planned, organized, designed, built, and controlled
B3 Explain how enterprises apply technological systems for generating wealth by providing goods and services
B7 Explain how new and higher quality products require new and higher quality materials and processing techniques

Unit 2

B2 Demonstrate how systems are planned, organized, designed, built, and controlled
B3 Explain how enterprises apply technological systems for generating wealth by providing goods and services
B7 Explain how new and higher quality products require new and higher quality materials and processing techniques

Unit 3 Cutting Board

C4 Select materials and other resources for a technological design and develop practical solutions
C6 Design and/or create solutions that are functional, aesthetically pleasing, demonstrate quality, have value greater than the investment, and meet a societal want or need