

Production

½ Credit
1 Semester

TEXTBOOK: Modern Woodworking – Wagner – The Goodheart – Wilcox Company, Inc. 1980

PREREQUISITE: None

COURSE DESCRIPTION:

This course is designed for the student who wishes to pursue a career in a woodworking or metalworking production trade. The students will be introduced to assembly procedures through a mass production project. All phases of mass production will be discussed and the students will design a flow chart, complete a materials list, and develop job descriptions. Social skills, as well as techniques will be stressed throughout the course. Workbook exercises will be used to help the student become knowledgeable in woodworking and metalworking terminology. The mass production project will be the main emphasis of the course and the students will evaluate each other on the efficiency of their roles and their contributions to the project. The students will also be responsible for the marketing of the mass production project.

This course is open to freshmen, sophomores, juniors, and seniors. This course meets for one period daily for one semester for one-half credit.

COURSE CONTENT:

- Safety Rules
- What is Wood
- Selecting Stock
- Lumber Grades and Sizing
- Wood Products
- Woodworking Processes
- Sanding Procedures
- Wood Fasteners
- Gluing and Clamping
- Mass Production
- Woodworking Technology
- Careers in Woodworking

COURSE FORMAT: Course material is present through classroom lectures, handouts, overhead presentations, videos and lab demonstrations. Lectures may include textbook chapters, handouts, videos, and power points.

COURSE EXPECTATIONS: Students will be expected to complete all required projects and participate in the completion of a group mass production project. Students must complete all worksheets and tests.

GRADES: Grades will be assessed for each unit of study – homework assignments, weekly unit tests, comprehensive unit tests, and weekly lab work. Attitude grades will be recorded.

OBJECTIVES: THE STUDENT WILL BE ABLE TO:

- I. Understand technical systems and their applications
 - Identify the differences between hardwoods and softwoods
 - Explain the different grades of hardwoods and softwoods
 - Explain the differences between plain and quarter sawn lumber and list the advantages and disadvantages of each
 - Identify the differences between open and closed grain wood
 - Explain the methods of drying lumber
 - Become aware of different lumber defects
 - Interpret the coding on a sheet of plywood
 - Explain the differences between rough and dimensional stock lumber
 - Understand nail sizing
 - Demonstrate the ability to fasten wood members with screws
 - Understand cabinet construction techniques
 - Understand door construction techniques
 - Demonstrate the ability to cut and fit a variety of cabinet mouldings
 - Apply hinges to fasten the doors to the cabinets
 - Construct a drawer using dovetail joints
 - Construct or apply drawer guides to a cabinet
 - Identify a variety of adhesives used in wood construction techniques
 - Identify wood machining terminology and techniques
 - Identify wood joinery techniques
 - Identify wood working tools, machines, and equipment by their proper name
 - Identify woodworking abrasives associated with wood construction
 - Become aware of a variety of cabinet stains and their application techniques
 - Become aware of a variety of wood finishes and their application techniques
 - Identify wood working nomenclature
 - Create a mass-production flow chart with symbols
 - Interpret a mass-production flow chart
 - Understand the principle of supply and demand
 - Understand MIG, TIG, and oxyacetylene welding applications and techniques
 - Set up and regulate gas pressures to create a neutral flame for oxyacetylene welding
 - Understand the safety involved with all welding units and welding booths
 - Always wear proper safety equipment and clothing necessary for protection while welding
 - Pass a welding safety test with 94% accuracy
 - Operate the cutting shear to accurately cut different thicknesses of metal

- II. Be able to analyze and solve technical problems:
 - Layout and cut cabinet pieces with wood working equipment
 - Estimate the materials needed for a cabinet or required project and create a bill of materials
 - Estimate the labor costs for a specific project
 - Translate cabinet construction information from a set of blueprints
 - Measure distances on a blueprint using an architect's scale
 - Measure a variety of cuts using a framing square
 - Calculate board foot measurements for a cabinet project
 - Calculate square foot measurements for a cabinet project
 - Calculate linear foot measurements for a cabinet project
 - Calculate the proper settings for welding different thicknesses of metal
 - Choose the correct filler rod for a variety of welding applications
 - Accurately measure the lay out metal pieces to be welded together

- III. Become familiar with a variety of techniques and related occupations.
 - Become aware of educational and training programs available for careers in cabinetry and/or welding
 - Become aware of cabinetry and welding-related job offerings through the Work Based Learning Program offered through Tazewell County EFE
 - Become aware of cabinetry and welding related job offerings through CHI at MHS
 - Investigate career opportunities offered by the tri-county laborers union
 - Become aware of cabinetry opportunities offered at Roecker Cabinets in Morton
 - Become aware of welding opportunities offered at Morton Welding and Caterpillar in Morton

- IV. Be able to demonstrate cooperative work skills
 - Work with other students to make up a team or teams that will be responsible for the completion of a mass-production project
 - Communicate with other students or teams to identify mass-production project concerns or changes
 - Communicate to other students or teams to meet the project time-lines
 - Interpret a work order
 - Communicate with the project supervisor to interpret project blueprints

- V. Investigate and explore emerging technologies and technical occupations
 - Complete a job application
 - Apply for a carpentry-related job
 - Write a resume
 - Write a follow-up letter
 - Become aware of modern and innovative structural techniques and material
 - Explore building materials through the Sweet's Catalogs

- Examine a variety of energy efficient building techniques and associated materials
- VI. Be able to operate equipment and machines in a proper and considerate manner
- Identify all hand tools used in construction techniques
 - Demonstrate the safety involved with all the hand tools used in the labs
 - Identify all power tools used in the labs
 - Demonstrate the ability to safely operate all the equipment in the labs
 - Pass the safety test with 94% accuracy
 - Demonstrate a safe attitude towards the other students and instructor
 - Always wear proper personal safety equipment and clothing in both the woodworking and welding labs