

VALLEY ROP COURSE OUTLINE

COURSE TITLE:	Cabinetmaking 1	
VALLEY ROP #:	BTC-5507-Cab1	
CDE #:	1951	
CBEDS TITLE:	Millwork & Cabinetmaking	
CBEDS #:	5507	
CTE SECTOR:	Building Trades & Construction	
CTE PATHWAYS:	Cabinetmaking & Wood Products	
JOB TITLES:	First Line Supervisor/Manager of Production & Operating workers	51-1011.00
	Production Workers, all other	51-9099.00

COURSE DESCRIPTION:

This competency-based course prepares students for entry-level positions in the cabinetmaking industry. Included in the course are cabinet design and styles, the use of advanced machines and equipment, computer-aided manufacturing, special materials and commercial wood finishes. Students will demonstrate their knowledge and skills by designing and building advanced wood projects. This course is for juniors and seniors only and may be taken for two years.

DATE APPROVED:	October 1999
REVISED DATE(S):	January 2006 / March 2009 / Oct 2009
HOURS:	180
CREDITS:	10
PREREQUISITES:	None
GRADE LEVEL:	11-12
ARTICULATION(S):	None
TEXTBOOKS:	Modern Cabinetmaking, William Umstattd, Goodheart-Willcox Publishing, 2005

COURSE COMPETENCIES:

Upon completion of this course, the student will:

- Learn and understand the safety rules and good safety attitudes. The students will demonstrate this knowledge through the repetitive use of tools and equipment and passing a safety test.
- Learn about the variety of tools and machines used in the woodworking area. Students will identify each machine, explain its purpose and demonstrate its use.
- Learn the different materials, hardware and millwork used in cabinetmaking. Students will identify, cut, install, adjust and manufacture these items through the construction of cabinets.
- Learn the principles of mass production. The students will demonstrate these by building a mass-produced product and identifying each principle used.
- Review basic math skills. Students will demonstrate these skills through the completion of a bill of materials and accurate layout on projects.
- Learn how a basic cabinet is constructed and assembled. Students will identify the parts of a cabinet and demonstrate their skill by constructing and assembling a cabinet.
- Learn to design, plan and estimate the total cost of a project. Students will demonstrate this by producing a cabinet drawing, dimensioning it and completing a bill of material.
- Learn how computers are used in the woodworking field. Students will produce a CAD (computer aided drafting) drawing, transfer it to CAM (computer aided manufacturing) and produce a product using a CNC (computer numerical control) router.
- Learn about job opportunities and careers in woodworking and other related fields. Students will identify different job descriptions and requirements by taking field trips to cabinet shops and to Career Day at Fresno City College.
- Learn how to find a job. Students will accurately complete a job application and produce a resume. Students will also be given a Certificate of Completion listing the entry-level skills obtained in Cabinetmaking.

INSTRUCTIONAL METHODS:

- Lecture
- Demonstrations
- Multi-media aids
- Cooperative group learning
- Note taking
- Reading
- Project construction
- Homework

EVALUATION METHODS:

Assessment opportunities, which allow continuous evaluation of students' progress, will be embedded throughout the course and should be a learning experience. All students will be expected to achieve mastery of all topics; often, demonstrations of mastery will occur in a public forum. The following strategies, which include both formal and informal assessment techniques will include, but are not limited to:

- Projects (practice cabinets, mass-production projects, community service project, CNC generated products, and student designed cabinets)
- Chapter tests and quizzes (t/f, multiple choice, identification, matching, and manual)
- Class participation (attendance, homework, and group participation)
- Semester final (t/f, multiple choice, identification, and manual)
- Chapter questions and problems (short answer, definitions, and critical thinking)

COURSE OUTLINE:

Unit of Instruction	Estimated Hours	Standards
Orientation	5	
<ul style="list-style-type: none">• The future of the cabinetmaker• What the student can expect from this course• What the ROP program expects from the student• The shop facilities• Shop management• Pre-testing		
Safety and Housekeeping	10	A6.1, 6.2
<ul style="list-style-type: none">• Dress and personal safety equipment• Housekeeping• Fire prevention• Solvents and toxic vapors• Emergency procedures• First aid procedures• General safety factors• Machine and tool safety• General safety test		
Hand Tool	5	A2.1, 2.2, 3.1, 3.2
<ul style="list-style-type: none">• Layout, measuring, and checking devices• Sawing tools• Edge cutting tools• Drilling and boring tools• Tool sharpening and maintenance		
Woodworking machines	10	A4.1, 4.2, 4.4
<ul style="list-style-type: none">• Circular (Table) saw• Radial arm saw• Band saw• Jointer• Scroll saw• Planner• Router• Drilling and boring machines• Sanding machines• Shaper• Panel router• Face-frame machine• Miter box• CNC router		
Cabinetmaking Materials	10	A8.3
<ul style="list-style-type: none">• Wood-its nature and properties• Kinds of wood• Fine furniture woods• Plywoods• Hardboard, particleboard, melamine		

• Millwork, including molding		
• Fasteners		
• Hardware		
• Plastic laminates		
Math for the cabinetmaker	5	A1.4
• Customary system		
• Metric system (introduction only)		
• Basic measuring and math review		
Construction	50	A1.1, 1.3 5.1, 7.1, 7.4
• Basic construction problems		
• Cabinet nomenclature		
• Gluing and clamping		
• Layout rods		
• Basic casework		
• Face frames		
• Drawers and drawer guides		
• Doors		
Production	30	A7.3, 7.6
• Fixtures		
• Mass Production		
• Specialized machines		
• Cabinet installation		
Designing, planning and estimating	10	A1.2, 5.2, 7.2
• Cabinet styles and design		
• Cabinet drawings		
• Dimensioning		
• Proportioning		
• Cutting lists		
• Panel layout		
• Bill of materials		
Staining and finishing	15	A4.3, 7.5
• Puttying and sanding		
• Wash coats		
• Types/colors of stains		
• Spray equipment		
• Spraying techniques		
• Types of finishes		
Computer Technology	20	A7.3
• CAD (Computer Aided Drafting)		
• CAM (Computer Aided Manufacturing)		
• CNC (Computer Numerical Control)		
Job/Career Search	10	A9.1, 9.2
• Job applications		
• Job descriptions/requirements		
• Field trip to a cabinet business		
• Career Day to Fresno City College		
• Carpentry and other related woodworking trades		
• Apprenticeship programs		

CAREER PREPARATION STANDARDS:

- A. **PERSONAL SKILLS** - Students will understand how personal skill development affects their employability. This skill includes positive attitudes, self-confidence, honesty, responsibility, initiative, self-discipline, personal hygiene, time management, and the capacity for lifelong learning.
1. Demonstrate an understanding of classroom policies and procedures.
 2. Discuss importance of the following personal skills in the business environment:
 - a. positive attitude
 - b. self-confidence
 - c. honesty
 - d. perseverance
 - e. self-management/work ethic
 - f. pride in product/work
 - g. dependability
 3. Identify acceptable work attire.
 4. Establish goals for self-improvement and further education/training.
 5. Prioritize tasks and meet deadlines.
 6. Understand the importance of initiative and leadership.
 7. Understand the importance of lifelong learning in a world of constantly changing technology.
- B. **INTERPERSONAL SKILLS** - Students will understand key concepts on group dynamics, conflict resolution, and negotiation. This skill includes the ability to work cooperatively, accept supervision, assume leadership roles, and show respect for others. This standard includes an understanding of sexual harassment laws and an appreciation of cultural diversity in the workplace.
1. Identify and discuss behaviors of an effective team.
 2. Explain the central importance of mutual respect in the workplace relations.
 3. Discuss and demonstrate strategies for conflict resolution and negotiation, and explain their importance within the business environment.
 4. Understand laws that apply to sexual harassment in the workplace, and identify tactics for handling harassment situations.
 5. Work cooperatively, share responsibilities, accept supervision and assume leadership roles.
 6. Demonstrate cooperative working relationships and proper etiquette across gender and cultural groups.
- C. **THINKING AND PROBLEM-SOLVING SKILLS** - Students will exhibit critical and creative thinking skills, logical reasoning, and problem-solving. These skills include applying basic skills in order to calculate, estimate, measure; identify, locate, and organize information/data; interpret and follow directions from manuals, labels, and other sources; analyze and evaluate information and solutions.
1. Recognize the importance of good academic skills and implement a plan for self-improvement as needed.
 2. Read, write, and give directions.
 3. Exhibit critical and creative thinking skills and logical reasoning skills, and employ these skills for problem solving.
 - a. Work as a team member in solving problems.
 - b. Diagnose the problem, its urgency, and its causes.
 - c. Identify alternatives and their consequences.
 - d. Explore possible solutions.
 - e. Compare/contrast the advantages and disadvantages of alternatives.

- f. Determine appropriate action(s).
 - g. Implement action(s).
 - h. Evaluate results of action(s) taken.
- D. **COMMUNICATION SKILLS** - Students will understand principles of effective communication. This standard includes effective oral and written communication, listening skills, following and giving directions, requesting and giving information, asking questions.
1. Use communication concepts in application of skills, techniques, and operations.
 - a. Prepare written material.
 - b. Analyze written material.
 2. Understand and implement written instructions, from technical manuals, written communications, and reference books.
 3. Present a positive image through verbal and nonverbal communication, and understand the power of body language in communication.
 4. Demonstrate active listening through oral and written feedback.
 5. Give and receive feedback.
 6. Demonstrate assertive communications (both oral and written).
 7. Demonstrate proper etiquette in workplace communications, including an awareness of requisites for international communications (languages, customs, time zones, currency and exchange rates).
 8. Demonstrate writing/editing skills as follows:
 - a. Write, proofread, and edit work.
 - b. Use correct grammar, punctuation, capitalization, vocabulary, and spelling.
 - c. Select and use appropriate forms of technology for communication.
 9. Exhibit a proficiency in the use of reference books.
 10. Research, compose, and orally present information for a variety of business situations utilizing appropriate technology.
- E. **OCCUPATIONAL SAFETY** - Students will understand occupational safety issues, including the avoidance of physical hazards in the work environment. This includes the safe operation of equipment, proper handling of hazardous materials, appropriate attire and safety accessories, avoidance of physical injuries, interpretation of warning and hazard signs and terminology, and following and understanding safety-related directions.
1. Discuss and implement good safety practices, including the following (if applicable to course):
 - a. personal
 - b. lab
 - c. fire
 - d. electrical
 - e. equipment
 - f. tools
 - g. interpretation of Material Safety Data Sheets (MSDSs)
 - h. Environmental Protection Agency (EPA)
 - i. Occupational Safety and Health Administration (OSHA)
 - j. American Red Cross Standards (ARC)
 - k. Networking Safety Standards
 2. Apply sound ergonomic principles in organizing one's work space.
- F. **EMPLOYMENT LITERACY** - Students will understand career paths and strategies for obtaining employment within their chosen field. This includes traditional job preparation skills, such as resumes, application forms, cover letters, sources of employment information, and interviewing skills, but also includes an overview of the industry and an understanding of labor market trends.

1. Explore career opportunities and projected trends; investigate required education, training and experience; and develop an individual education plan.
2. Identify steps for setting goals and writing personal goals and objectives.
3. Examine aptitudes related to career options; relate personal characteristics and interests to educational and occupational opportunities.
4. Develop a career portfolio, including the following documents:
 - a. job application
 - b. resume(s)
 - c. appropriate cover and follow-up correspondence
5. Identify and demonstrate effective interviewing techniques.
- G. **TECHNOLOGY LITERACY** - Students will understand and adapt to changing technology by identifying, learning, and applying new skills to improve job performance. Students should understand the role of technology in their chosen field and should be able to use all appropriate technology. Students should also feel confident in their ability to learn new technology by generalizing from what they know, adapting skills to new situations, and identifying and using sources of information and of further learning.
 1. Demonstrate the ability to use personal computers for loading and retrieving data, information gathering, measurements, and writing.
 2. Identify the characteristics and explain the importance of adapting to changes, being flexible, and evaluating goals when working in the industry.
 3. Understand the importance of lifelong learning in adapting to changing technology.
- H. **IMPORTANCE OF ETHICS** – Students will understand proper ethics in the workplace.
 1. Discuss social and ethical responsibilities in the industry.
 2. Demonstrate ethical choices in workplace situations.