

El Monte Union High School District – Career Technical Education

7312 ADVANCED CABINETRY, MILLWORKING AND WOODWORKING

DATE:

INDUSTRY SECTOR: Building and Construction Trades Sector

PATHWAY: Cabinetry, Millwork and Woodworking

CALPADS TITLE: Advanced Cabinetry, Millwork, and Woodworking (Concentrator)

CALPADS CODE: 7312

HOURS:

Total	Classroom	Laboratory/CC/CVE
180	90	90

JOB TITLE	O*NET CODE	JOB TITLE	O*NET CODE
Woodworkers, All Other	51-7099.00	Cabinetmakers and Bench Carpenters	51-7011.00
Sawing Machine Setters, Operators, and Tenders, Wood	51-7041.00	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	51-7042.00
Furniture Finishers	51-7021.00		

COURSE DESCRIPTION:

This course will serve as a capstone course under the California Career Technical Education Standards of Cabinetry, Millwork and Woodworking Pathway. Additionally it has been written to meet A-G requirements as an Art Elective. Students will demonstrate mastery of cabinetry and furniture making. They will be able to square up stock, make a variety of standard joints. They will be able to prepare materials for finishing, apply stains and finish coats. Using wood and wood by-products as the primary artistic medium, students will be provided with experiences in artistic perception, aesthetic valuing, creative expression and connections, and applications by designing wood furnishings, and objects with various wood species. Students will learn the concepts of positive and negative space, symmetry and asymmetry, proportion, color value and contrast; and they will produce woodworking projects to demonstrate these concepts.

A-G APPROVAL: A

ARTICULATION:

College	Course Code
Cerritos community College	????

DUAL ENROLLMENT: None

PREREQUISITES:

Prerequisite
Integrated Math 1

METHODS OF INSTRUCTION

- Direct instruction
- Group and individual applied projects
- Multimedia
- Demonstration

STUDENT EVALUATION:

- Student projects
- Written work
- Exams
- Observation record of student performance
- Completion of assignment

INDUSTRY CERTIFICATION:

- Unknown

RECOMMENDED TEXTS:

- Fred W. Zimmerman, Larry J McWard and Don L Blazek. Exploring Woodworking: Fundamentals of Technology, 8th Edition. G-W Publishing
- Nancy Macdonald, Woodworking, 2nd Edition. Delmar Cengage Learning

PROGRAM OF STUDY #1

Grade	Fall	Spring	Year	Course Type	Course Name
10				Concentrator	7311 Intermediate Cabinetry, Millworking and Woodworking
11				Capstone	Advanced Cabinetry, Millworking and Woodworking.

PROGRAM OF STUDY #2

Grade	Fall	Spring	Year	Course Type	Course Name
9				Introductory	7310 Introduction to Cabinetry, Millwork and Woodworking
10				Concentrator	7311 Intermediate Cabinetry, Millworking and Woodworking

I.	UNIT 1, COURSE INTRODUCTION	CR	Lab/ CC	Standards
	<p>1. Format & Procedures</p> <ol style="list-style-type: none"> 1. Review syllabus & classroom procedures 2. Form work and clean-up groups 3. Locker assignments 4. Expected behavior standards 5. Identify shop equipment and work areas <p>2. Career Planning and Management</p> <ol style="list-style-type: none"> 1. Explore career aptitude and options 2. Evaluate character traits necessary for success 3. Explore professional organizations, industrial associations and organized labor in society 4. Research career opportunities and their requirements <p>3. General safety and hand tool safety</p> <ol style="list-style-type: none"> 1. General shop safety 2. Safety around electrical equipment 3. General fire safety 4. Safety in handling flammable liquids 5. Identification and proper use of hand tools 6. Learn about OSHA & MSDS 	13	3	<p>Academic: LS: 11-12.6 RSIT : 11-12.2, 11-12.7 RLST : 11-12.2, 11-12.3, 11-12.4, 11-12.7, 11-12.9</p> <p>CTE Anchor: Career Planning and Management: 3.1, 3.2, 3.3, 3.4, 3.6 Technology: 4.1 Health and Safety: 6.12 Responsibility and Flexibility: 7.1, 7.2, 7.3, 7.4, 7.7 Ethics and Legal Responsibilities: 8.2, 8.3, 8.4, 8.5 Leadership and Teamwork: 9.1, 9.2, 9.6 Demonstration and Application: 11.1, 11.5</p> <p>CTE Pathway: A2.1, A2.3, A4.1, A4.2, A4.3, A4.6</p>
II.	BASIC DRAWING, MEASURING AND SQUARING	CR	Lab/ CC	Standards
	<p>1. Measuring, Scaling, Part 1 of 2-D drawing</p> <ol style="list-style-type: none"> 1. Using a tape measure and ruler to measure to within 1/16 of an inch. 2. Understanding and using Scale 3. Making simple 2-D orthographic projection drawings 4. Standards for isometric drawings and dimensioning <p>2. Selection and Use of Hand Saws and Planes</p> <ol style="list-style-type: none"> 1. Use and selection of hand saws: understanding TPI 2. Use and selection of hand planes: proper adjustment, assembly, care and sharpening 3. Proper use of try-square and tape measure <p>3. Benchmark Projec: Students will rip-cut, cross-cut, plane to thickness and square wood stock what will be used in future projects. The best of 4 attempts will be graded.</p>	12	15	<p>Academic: A-CED: 1 G-GMD: 4 G-SRT: 8, 8.1 N-Q: 3</p> <p>CTE Anchor: Communications: 2.5 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3 Health and Safety: 6.1, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.11, 6.12</p> <p>CTE Pathway: A1.9, A1.7, A4.2, A4.3, A4.1, A4.5, A4.6, A4.7, A7.1, A7.9</p>

III.	BASIC SANDING STAINING AND FINISHING	CR	Lab/ CC	Standards
	<p>1. Part 1 of Sanding and Scraping</p> <ol style="list-style-type: none"> 1. Understanding and selecting proper sandpaper and grit 2. Demonstrate hand sanding techniques for flat and irregular surfaces including end-grain 3. Demonstrate scraping techniques for flat and irregular surfaces including end-grain 4. Make a properly squared and burnished edge on a scraper 5. Safety and proper operation of sanding machines <ol style="list-style-type: none"> 1. Orbital palm sanders 2. Disk sander 3. Spindle sander <p>2. , Staining and Finishing</p> <ol style="list-style-type: none"> 1. Process for sealing grain 2. When to use a stain pre-conditioner 3. Selection and application of appropriate stains and colors 4. Selection and application of appropriate clear-coat finishes <p>3. Benchmark Project: Material cut, shaped and prepared in the Unit 6 benchmark project will be stained and finished to a semi-gloss patina. Students will have several pieces to finish and they will experiment by using a variety of different color stains and by finishing some with and without sealer, some with and without pre-conditioner.</p>	9	13	<p>Academic: LS: 11-12.6 RLST : 11-12.2, 11-12.3, 11-12.4, 11-12.7, 11-12.9 CC: 2, 3, 7</p> <p>CTE Anchor: Problem Solving and Critical Thinking: 5.1, 5.2, 5.3 Health and Safety: 6.1, 6.1, 6.2, 6.3, 6.6, 6.9, 6.11, 6.12</p> <p>CTE Pathway: A8.1, A8.2, A8.3, A8.4, A9.1, A9.2, A9.3, A9.4, A9.5, A9.6</p>
IV.	BAND SAW AND SCROLL SAW -- DECORATIVE WOODWORK	CR	Lab/ CC	Standards
	<ol style="list-style-type: none"> 1. Bandsaw & Scrollsaw safety, operation and adjustment 2. Purpose and uses of bandsaw and scrollsaw 3. Decorative detail and 2-D relief design <ol style="list-style-type: none"> 1. Proportion 2. Symmetrical and asymmetrical balance 3. Contrast and depth 4. Semester End Project: Students will design and produce an artistic 2-D project (intarsia, cutout latas, or cutout details for picture frames or clock faces) using the bandsaw and scrollsaw. These projects will be sanded, stained and finished 	11	14	<p>Academic: LS: 11-12.6 RLST : 11-12.10, 11-12.2, 11-12.3, 11-12.4, 11-12.7, 11-12.9 WHSST : 11-12.1, 11-12.2</p> <p>CTE Anchor: Health and Safety: 6.1, 6.2, 6.5, 6.7, 6.8, 6.9, 6.11, 6.12</p> <p>CTE Pathway: A1.9, A1.7, A4.1, A4.2, A4.3, A4.5, A4.6, A4.7, A5.1, A5.2, A5.3, A7.1, A7.9, A8.1, A8.4, A8.2, A8.3, A9.1, A9.6, A9.4, A9.5, A9.2, A9.3</p>
V.	DESIGN PROCESS AND BASIC JOINERY	CR	Lab/ CC	Standards

	<p>1. Beginning the Design Process</p> <ol style="list-style-type: none"> Evaluating form and function Balance, proportion and symmetry 2-D sketching Isometric perspective and 3-D sketching <p>2. Joinery and Adhesives</p> <ol style="list-style-type: none"> Identify a variety of adhesives used in woodworking. Compare advantages and disadvantages adhesives and how they are used. Identify a variety of joints used in woodworking. Compare advantages and disadvantages and how to select the best joint for a specific situation. <p>3. Benchmark Project: Students will use scrap wood to cut and fit a standard dovetail joint by hand and a simple butt joint. After the joints are glued, they will be pulled apart so students can test the effectiveness of both types of joints</p>	10	10	<p>Academic: RSIT : 11-12.7 RLST : 11-12.2, 11-12.3, 11-12.4, 11-12.7, 11-12.9 WS : 11-12.4, 11-12.5 WHSST : 11-12.1 SEP: 2 CC: 3</p> <p>CTE Anchor: Technology: 4.1 Health and Safety: 6.1, 6.9 Technical Knowledge and Skills: 10.1</p> <p>CTE Pathway: A1.1, A1.2, A1.5, A1.6, A1.7, A1.8, A1.9, A2.1, A5.3, A5.1, A5.2, A5.10, A6.5, A6.6, A6.7, A6.8, A6.11, A6.12, A6.13, A6.9, A6.10</p>
VI.	DESIGNING A PROJECT AND CREATING PLANS	CR	Lab/CC	Standards
	<p>1. Selecting Materials and Producing Final Plans</p> <ol style="list-style-type: none"> Lumber: Hardwoods and softwoods Lumber: Milling, seasoning, characteristics and flaws Lumber: Species, cost and calculation of board-feet Types and characteristics of manufactured wood and wood products e.g. plywood, particleboard, MDF, etc. Formal 2-D and 3-D, dimensioned plans <p>2. Benchmark Project: Students will have to product a full set of plans, including material costs, justification for the materials that have been selected, for a project assigned by the instructor. At a minimum, the project will include a drawer, several types of joinery and routed edges and/or details.</p>	15	10	<p>Academic: WS : 11-12.2, 11-12.4 WHSST : 11-12.2, 11-12.4, 11-12.5, 11-12.6, 11-12.7, 11-12.9 SEP: 2 CC: 3, 4</p> <p>CTE Anchor: Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4</p> <p>CTE Pathway: A1.9, A1.7, A1.8, A5.1, A5.2, A5.3, A5.4, A5.5, A5.9</p>
VII.	USING AND OPERATING POWER TOOLS	CR	Lab/CC	Standards
	<p>A. General Power Tools Safety</p> <ol style="list-style-type: none"> Electrical safety: power cords, proper grounding, connecting and disconnecting machinery Identification uses of typical woodworking machinery: miter saw, table saw, jointer, planer drill press and fixed router Identification, inspection and use of safety guards, fences and other mechanical safety devices <p>B. Operation of Miter Saw</p> <ol style="list-style-type: none"> Identify and understand parts of the miter saw Adjustments and setting of a compound miter saw 	5	6	<p>Academic: RSIT : 11-12.1, 11-12.2, 11-12.7</p> <p>CTE Anchor: Health and Safety: 6.2, 6.9, 6.12</p> <p>CTE Pathway: A4.3, A4.4, A7.1</p>

	<p>3. Miter saw safety</p> <p>4. Miter saw operation</p> <p>C. Operation of Jointer and Planer and Squaring Materials to Size Using Power Tools</p> <p>1. ???????Identify and understand parts of the jointer and planer</p> <p>2. Adjustments and setting of a compound jointer and planer</p> <p>3. ???????Jointer and planer safety</p> <p>4. Using power tools to square materials to dimension</p>			
VIII.	BUILDING FINAL PROJECT	CR	Lab/ CC	Standards
	<p>A. Sledation if the Stationary Router</p> <p>1. Identify and understand parts of the stationary router</p> <p>2. Adjustments and setting of a compound stationary router</p> <p>3. Stationary router safety</p> <p>4. Stationary router operation</p> <p>B. Operation of the Table Saw with a Slead</p> <p>1. Identify and understand parts of the table saw</p> <p>2. Adjustments and setting of a compound table saw</p> <p>3. Table saw safety</p> <p>4. Using a sled on the table saw</p> <p> 1. Making crosscuts</p> <p> 2. Making rip cuts</p> <p> 3. Making rabbets and dados</p> <p>C. Benchmark Project:</p> <p>1. Students complete the drawer from Unit by cutting the dados for the bottom and the bottom, using the table saw with the sled.</p> <p>2. Students will use the skills they have learned over the course of the year to complete the project they made plans previously. While projects will change your to year, an example of a year end project would be a desktop bookcase. It would have a drawer and sides would extend beyond the drawer so that books could be held upright above the drawer. It could have a sliding divider between the sides of the drawer to act as a bookend. More advanced students will be able to add carvings on the side, inlay or intarsia demonstrate their skills.</p>	15	19	<p>Academic:</p> <p>WHSST : 11-12.1, 11-12.2, 11-12.4, 11-12.5, 11-12.6, 11-12.7</p> <p>CTE Anchor:</p> <p>Communications: 2.3, 2.5, 2.6</p> <p>Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4</p> <p>Health and Safety: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.11, 6.12</p> <p>Responsibility and Flexibility: 7.4, 7.5, 7.7</p> <p>CTE Pathway:</p> <p>A1.5, A1.7, A3.1, A3.4, A4.1, A4.4, A4.5, A4.2, A4.3, A4.6, A4.7, A6.8, A6.9, A6.6, A6.7, A6.1, A6.5, A6.10, A7.6, A7.9, A7.1, A8.3, A8.4, A8.1, A8.2</p>

Entered by:

District: El Monte Union High School District
Contact: Hillary Wolfe, Director, Research and Curriculum
Phone: (626) 444 9005 x9925
Email: Hillary.wolfe@emuhsd.org