

9. COURSE OUTLINE**A. Career Preparation Skills**

Class Hours	CC/CVE Hours	GENERAL WORKPLACE SKILLS	Standards
30	Integrated throughout the course	<ul style="list-style-type: none"> • Attitude and Work Habits <ol style="list-style-type: none"> 1. Works both independently and collaboratively 2. Attends regularly and on time 3. Practices good safety procedures 4. Solves problems thinks critically and makes good decisions 5. Plans work and takes initiative 6. Demonstrates leadership and the willingness to help train others • Job Employment Skills <ol style="list-style-type: none"> 1. Develop a plan to achieve career goals 2. Complete a career portfolio 3. Use effective job search strategies 4. Perform employment research 5. Complete job application and resume 6. Develop effective interviewing and follow-up skills. 7. Demonstrate an awareness of importance of lifelong learning. 	<p>CPS: Personal Skills; Interpersonal Skills</p> <p>SCANS: Personal Qualities; Interpersonal Qualities</p> <p>CPS: Employment Literacy</p>

Sources:

CPS - *Career Preparation Standards*. California Department of Education and WestEd
 SCANS - *What Work Requires of Schools: A SCANS Report of America 2000*.
 The Secretary's Commission on Achieving Necessary Skills, Publication of the US Dept. of Labor, June 1991.
Career Technical Education Model Curriculum Standards. California Department of Education. May 2005

B. Career Technical Skills							
Class Hours	CC/CVE Hours	CONTENT AREA SKILLS		Foundation Standards (page numbers)	Mention - M Reinforced - R Taught - T	CTE Pathway Standards (page numbers)	Mention - M Reinforced - R Taught - T
25	0	I. Safety		* See attached pages that follow			
			The individual shall have a thorough understanding in all aspects of safety operations regarding specific use of wood instruction tools.	6.1 6.2 6.3 6.5 6.6 p76 all	T T M M T	A2.0 (ALL) A3.0 (ALL) A4.0 (ALL) A6.0 (ALL) p79 all	T T T T T
35	0	II. Blue Print Reading					
			The student will learn and understand what he/she is looking at on an Able Print Drawing. The student will learn how to form a cutting list from the architect's drawing. The student will learn how to use computer aided design software.	NS 1.2, 1.3 MR 2.1 A1 11.0 G 12.0 2.5 pgs. 67-68	T/R T/R T/R T/R T	A1.0 (ALL) A5.1 A5.2 pgs.79-80	T T T
45	0	III. Cabinet Estimations					
			The student will learn to employ the basic skills of cabinet making and basic math to be proficient in estimating the job costs. Computer estimating will also be used. The student will learn the different types of materials used in the wood product industry.	MR 2.8 MR2.1 MR2.5 MR2.6 p67 WOC (1.4) p72	T R R R R	A7.2 A1.0 (ALL) A5.0 (ALL) pgs.79-80	M T T/M
75	10	IV. Case Construction					
			Students will understand the procedures and techniques of constructing cabinet case work, and know the tools, machines and materials used in the process.	MR 2.8 p67 10.1 p77 10.7 p78 5.0 (ALL) p76	R T M T	A2.0 (ALL) A3.0 (ALL) A4.0 (ALL) p.79	T T T

(page numbers from the Model Curriculum Standards book)

B. Career Technical Skills						
Class Hours	CC/CVE Hours	CONTENT AREA SKILLS	Foundation Standards (page numbers)	Mention - M Reinforced - R Taught - T	CTE Pathway Standards (page numbers)	Mention - M Reinforced - R Taught - T
55	30	V. Sub-System (Face-Frames, Doors and Drawers)				
		The student will learn to construct face-frames. The student will learn to utilize the appropriate techniques and procedures in the construction of doors and drawers. The student will learn to identify the parts of a face-frame and the parts of doors and drawers.	5.1 5.5 p76 10.1 9.3 p77	R R T R	A1.0 (ALL) A2.0 A2.1 A3.0 A3.1 A3.2 A4.0 A4.1 A4.2 A5.1 A5.4 A7.0 (ALL) pgs79-80	T T M T
55	30	VI. Cabinet Assembly				
		Students will understand the procedures and techniques of cabinet assembly as joining, fastening, squaring, etc., and know the tools and machines, and materials used in the process.	5.0 ALL 9.3 10.1 10.3 pgs76-78	R R T M	A1.1 A1.4 A2.0 A3.0 (ALL) A4.2 A5.1A 4.3 A6.3 A7.4 A7.5 pgs79-80	T T/R R T T T T T T T
40	30	VII. Installation of Cabinets	* See attached pages that follow			
		The student will learn to utilize the appropriate techniques and procedures for installing cabinets. The student will learn to understand the importance of proper installing as it relates to the overall completion of the cabinet job.	9.1 p77 9.3 9.5 9.6 5.1 p76 5.3 3.2 p75	R R R R R R M	A1.1 A1.4 A5.1 A5.4 A7.6 pgs79-80	T T T M T
20	20	VIII. Jigs and Fixtures				
		The student will learn and demonstrate his/her knowledge of jigs and fixtures, and their application as used in the cabinet-making industry.	5.1 5.2 5.4 p76	R R M	A6.1 A7.2 A5.1 p80	T M M
350	120	Total Hours				

(page numbers from the Model Curriculum Standards book)

C. Expected Student Proficiencies**ATTITUDE AND WORK HABITS**

- Works both independently and collaboratively
- Attends regularly and on time
- Practices good safety procedures
- Solves problems thinks critically and makes good decisions
- Plans work and takes initiative
- Demonstrates leadership and the willingness to help train others

SAFE USE AND SET-UP OF POWER TOOLS

- Jointer
- Surfacer/planer
- Table Saw
- Band Saw
- Panel Saw
- Panel Router
- Face Frame Machine
- Router
- Miter Saw
- Jig Saw
- Sander-Portable
- Table Router
- Biscuit Joining Machine
- Pneumatic Nailers

KNOWLEDGE AND SKILLS

- Determine solid lumber grades and types
- Determine plywood grades and types
- Develop a shop sketch for a project
- Make scale drawings for a project
- Write a bill of Materials for a project
- Figure board feet and square feet
- Use and maintain common hand tools
- Lay out and cut various cabinet making joints
- Construct a standard cabinet
- Construct a cabinet incorporating a face frame
- Install drawer guide and supports
- Hang a cabinet door
- Install catches, handles and other types of hardware
- Identify and use different types of hardware
- Prepare project for sanding and finishing
- Apply stains and other wood finishes

10. ADDITIONAL RECOMMENDED/OPTIONAL ITEMS

A. **Academic credit:** One year or 10 units

B. **Other – n/a**

ARTICULATION None

UC APPROVAL None

X INDUSTRY CERTIFICATION NOCTI

C. **Instructional Strategies:**

- | | |
|----------------------------------|-----------------------|
| • Lecture | • Guest presentations |
| • Demonstration | • Group projects |
| • Design problems and vocabulary | • Computer programs |
| • Critical comparison | • Field trips |
| • Readings | • Videos |
| • Project-based learning | • Internet research |
| • Work-based learning | • Peer learning |

D. **Instructional Materials:**

- Wood Technology and Processes: by Feirer and Feirer, Glencoe, McGraw-Hill, 2006
- Modern Cabinetmaking: by William D. Umstadd & Charles W. Davis, The Goodheart-Willcox C., Inc., Tinley Park, Illinois, 2005
- Modern Carpentry 1996 Goodheart Wilcox
- Fine Woodworking, The Taunton Press, www.finewoodworking.com
- Cabinet Maker-cabinetmag.com
- Website resources

11. FOUNDATION (ACADEMIC) STANDARDS ALIGNED

1.0 Academics

Students understand the academic content required for entry into postsecondary education and employment in the Engineering and Design sector. *(The standards listed below retain in parentheses the numbering as specified in the mathematics, science, history–social science, and visual and performing arts content standards adopted by the State Board of Education.)*

Math

Specific applications of Number Sense standards (grade seven):

(1.2) Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers.

(1.3) Convert fractions to decimals and percents and use these representations in estimations, computations, and applications.

Specific applications of Mathematical Reasoning standards (grade seven):

(2.1) Use estimation to verify the reasonableness of calculated results.

(2.5) Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.

(2.6) Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

(2.8) Make precise calculations and check the validity of the results from the context of the problem.

Algebra I

(11.0) Students determine how changes in dimensions affect the parameter, area, and volume of common geo

(12.0) Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.

2.0 Communications

Students understand the principles of effective oral, written, and multimedia communication in a variety of formats and contexts. *(The standards listed below retain in parentheses the numbering as specified in the English–language arts content standards adopted by the State Board of Education.)*

Written & Oral English Language Conventions

Specific applications of English Language Conventions standards (grades nine and ten):

(1.4) Produce legible work that shows accurate spelling and correct use of the conventions of punctuation and capitalization.

Multimedia

Understand the importance of technical and computer-aided design and drawing technologies essential to the construction industry, including reading, interpreting, and creating drawings, sketches, and schematics by using the drawing conventions and standards of the construction industry; interpreting and understanding detailed information provided from technical documents (print and electronic) and experienced people; and using computers and calculators in a variety of applications.

3.0 CAREER PLANNING & MANAGEMENT

Students understand how to make effective decisions, use career information, and manage personal career plans:

3.1 Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers.

3.2 Understand the scope of career opportunities and know the requirements for education, training, and licensure.

3.3 Develop a career plan that is designed to reflect career interests, pathways, and postsecondary options.

3.4 Understand the role and function of professional organizations, industry associations, and organized labor in a productive society.

3.5 Understand the past, present, and future trends that affect careers, such as technological developments and societal trends, and the resulting need for lifelong learning.

3.6 Know important strategies for self-promotion in the hiring process, such as job applications, résumé writing, interviewing skills, and preparation of a portfolio.

3.7 Understand the nature of entrepreneurial activities.

4.0 TECHNOLOGY

Students know how to use contemporary and emerging technological resources in diverse and changing personal, community, and workplace environments:

- 4.1 Understand past, present, and future technological advances as they relate to a chosen pathway.
- 4.2 Understand the use of technological resources to gain access to, manipulate, and produce information, products, and services.
- 4.3 Understand the influence of current and emerging technology on selected segments of the economy.
- 4.4 Understand ways in which raw materials are collected and processed to produce industrial materials.

5.0 PROBLEM SOLVING & CRITICAL THINKING

Students understand how to create alternative solutions by using critical and creative thinking skills, such as logical reasoning, analytical thinking, and problem-solving techniques:

- 5.1 Apply appropriate problem-solving strategies and critical thinking skills to work-related issues and tasks.
- 5.2 Understand the systematic problem-solving models that incorporate input, process, outcome, and feedback components.
- 5.3 Use critical thinking skills to make informed decisions and solve problems.
- 5.4 Apply trouble-shooting strategies, including failure-analysis procedures, in three-dimensional product material and design work.
- 5.5 Apply the design process in the design, development, evaluation, and refinement of a prototype for a construction industry product.

6.0 HEALTH & SAFETY

Students understand health and safety policies, procedures, regulations, and practices, including the use of equipment and handling of hazardous materials:

- 6.1 Know the policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities.
- 6.2 Understand critical elements of health and safety practices related to storing, cleaning, and maintaining tools, equipment, and supplies.
- 6.3 Know procedures for and regulations concerning the handling, storage, and disposal of hazardous materials.
- 6.4 Know how regulatory agency laws and regulations are created and enforced.
- 6.5 Evaluate past, present, and future impacts of technological developments on the environment.
- 6.6 Understand the importance of identifying health and safety problems as well as asking for help or approaching supervisors to discuss concerns.

7.0 RESPONSIBILITY & FLEXIBILITY

Students know the behaviors associated with the demonstration of responsibility and flexibility in personal, workplace, and community settings:

- 7.1 Understand the qualities and behaviors that constitute a positive and professional work demeanor.
- 7.2 Understand the importance of accountability and responsibility in fulfilling personal, community, and workplace roles.
- 7.3 Understand the need to adapt to varied roles and responsibilities.
- 7.4 Understand that individual actions can affect the larger community.
- 7.5 Understand employer and employee responsibilities in the workplace.

8.0 ETHICS & LEGAL RESPONSIBILITY

Students understand professional, ethical, and legal behavior consistent with applicable laws, regulations, and organizational norms:

- 8.1 Know the major local, district, state, and federal regulatory agencies and entities that affect the industry and how they enforce laws and regulations.
- 8.2 Understand the concept and application of ethical and legal behavior consistent with workplace standards.
- 8.3 Understand the role of personal integrity and ethical behavior in the workplace.
- 8.4 Understand how social, organizational, and technological systems work.

9.0 LEADERSHIP & TEAMWORK

Students understand effective leadership styles, key concepts of group dynamics, team and individual decision making, the benefits of workforce diversity, and conflict resolution:

- 9.1 Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace settings.
- 9.2 Understand the ways in which preprofessional associations, such as SkillsUSA, and competitive career development activities enhance academic skills, promote career choices, and contribute to employability.

- 9.3 Understand how to organize and structure work individually and in teams for effective performance and the attainment of goals.
- 9.4 Know multiple approaches to conflict resolution and their appropriateness for a variety of situations in the workplace.
- 9.5 Understand how to interact with others in ways that demonstrate respect for individual and cultural differences and for the attitudes and feelings of others.
- 9.6 Communicate ideas to justify positions, persuade and convince others, confirm responsibility, and evaluate existing policies and procedures.

10.0 TECHNICAL KNOWLEDGE & SKILLS

- 10.1 Understand construction processes and systems and their importance in construction technology.
- 10.2 Maintain and troubleshoot equipment used in the construction industry.
- 10.3 Use, store, and allocate materials efficiently, and use space efficiently.
- 10.4 Understand the planning and design, construction, and servicing of structures and electromechanical systems in relation to construction activities.
- 10.5 Understand the resources used to transport people and goods in the construction industry.
- 10.6 Understand universal graphic conventions and symbols and technical manuals and specifications.
- 10.7 Understand the attributes of good design.
- 10.8 Understand the role of the construction industries sector in the California economy.
- 10.9 Understand the need to participate in sector-related professional improvement activities, SkillsUSA, other career technical education leadership and skill associations, and related career pathway specializations.
- 10.10 Understand the need to obtain and maintain industry-standard, technical certifications significant to an industry sector.
- 10.11 Understand the role of labor unions, both historically and currently, and the impact of unions on worker rights and protections, including wages, working conditions, health and safety, and benefits.

11.0 DEMONSTRATION & APPLICATION

Students demonstrate and apply the concepts contained in the foundation and pathway standards.

12. A. Cabinetmaking and Wood Products Pathway

The Cabinetmaking and Wood Products Pathway provides learning opportunities for students interested in preparing for careers in cabinet construction, millwork, and wood products and covers the construction of both custom and production products.

A1.0 Students understand measurement systems in the planning and layout process used in the cabinetmaking and wood products industry:

- A1.1 Know design solutions to common problems in cabinetmaking and wood products.
- A1.2 Understand calculation procedures for materials and production requirements for wood product designs.
- A1.3 Convert scaled drawing measurements to full dimensional layout and template applications.
- A1.4 Know conventional measurement processes for cabinetmaking and wood products, linear measurements, and conversions of fractions and decimals.

A2.0 Students understand the safe and appropriate use of hand tools common to the cabinetmaking and wood products industry:

- A2.1 Use common hand tools and accessories, such as planers, shapers, clamping and gripping tools, pliers, wrenches, wood chisels, hammers, hand saws, and squares, safely and properly.
- A2.2 Maintain and care for common hand tools.

A3.0 Students understand the safe and appropriate use of portable power tools common to the cabinetmaking and wood products industry:

- A3.1 Use portable power tools, such as single and compound miter saws, drills, sanders, saber saws, and routers, safely and appropriately.
- A3.2 Use pneumatic tools, such as pneumatic clamps, grips, framing nail guns, and finishing and brad nail guns, safely and properly.
- A3.3 Maintain and care for portable power and pneumatic tools.

A4.0 Students understand the safe and appropriate use of stationary power machines and equipment common to the cabinetmaking and wood products industry:

- A4.1 Understand the proper and safe use of stationary power tools used in the milling process, such as shapers, sanders, joiners, table saws, and band saws.
- A4.2 Understand the proper and safe use of stationary power tools used in the assembly process, such as pneumatic table clamps, case clamps, case frame fasteners, and hardware fasteners.
- A4.3 Understand the proper and safe use of stationary power tools used in the finishing process, such as glue applicators, laminate applicators, and lacquer and paint applicators.
- A4.4 Know the basic care, maintenance, and lock-out procedures for stationary power tools.

A5.0 Students understand procedures and processes as they occur in the cabinetmaking and wood products industry:

- A5.1 Know how to read, understand, design, and construct cabinets accurately from cabinetmaking fabrication and installation plans and specifications.
- A5.2 Understand how to estimate a bill of materials from drawings and specifications for constructing cabinets.
- A5.3 Understand how to create a job schedule in a cabinetmaking project.
- A5.4 Solve common cabinetmaking problems by using construction codes and cabinet building standards stated in the *Manual of Millwork*.
- A5.5 Understand recordkeeping procedures in all phases of cabinetmaking (e.g., time accounting, cost of goods).

A6.0 Students understand the value and necessity of practicing occupational safety in the cabinetmaking industry or shop:

- A6.1 Know the safety rules in the cabinetmaking work environment.
- A6.2 Use hand tools (wood chisels, drills, coping saws) and power tools (routers, sanders, planers) safely in the cabinet working environment.
- A6.3 Understand how to handle and dispose of toxic materials safely and use protective clothing as needed when using lacquers, acetone, thinners, staining materials, and so forth in an environmentally responsible manner.

A7.0 Students understand the variety of production processes used in the cabinetmaking and wood products industry:

- A7.1 Design and create cabinet and wood products.
- A7.2 Develop a production plan, including the layout, bill of materials, and cost analysis, for the production of cabinets or wood products.
- A7.3 Use stationary and portable power tools in milling the components for cabinets and wood products.
- A7.4 Use stationary and portable power tools in the assembly of cabinet and wood product components.
- A7.5 Use finish tools (e.g., airless sprayers, palm sanders) and techniques for finishing cabinets and wood products.
- A7.6 Use installation tools and understand the processes for the installation of cabinets, millwork, and wood products.

A8.0 Students understand the impact of financial, technical, and environmental trends on the past and future of the cabinetmaking and wood products industry:

- A8.1 Understand significant historical trends in cabinetmaking and wood products technology.
- A8.2 Understand environmental regulations that influence the cabinetmaking and wood products industry.
- A8.3 Understand issues of the sustainable use of wood product resources.

A9.0 Students understand career preparation and how it applies across all standards for students planning to enter and advance successfully in the cabinetmaking and wood products industry:

- A9.1 Understand the careers that are available in cabinetmaking and wood products manufacturing and related occupations (e.g., custom crafts, furniture making, and marketing).
- A9.2 Understand the need for professional growth across all aspects of the industry, including financial, leadership, and advancement elements.

LEGEND FOR REFERENCE OF ACADEMIC STANDARDS

Parenthetical notation preceding the content standard item refers to the grade level for the standard. i.e. (8) refers to grade 8, (9-10) refers to grades 9 & 10.

Example: (8) W2.1 refers to the Eighth Grade Writing Standard Item 2.1

English-Language Arts:

R Reading
W Writing
WOC Written & Oral Conventions
LS Listening & Speaking

Mathematics:

NS Number Sense
AF Algebra & Functions
SDP Statistics, Data Analysis & Probability
MR Mathematical Reasoning
MG Measurement & Geometry
AI Algebra I
G Geometry
AII Algebra II
P&S Probability & Statistics
APP&S Advanced Placement Probability & Statistics
C Calculus

Science:

PH Physics
CH Chemistry
ES Earth Science
I&E Investigation and Experimentation

History-Social Science:

WH World History, Culture and Geography
USH United States History and Geography
AD American Democracy
ECON Economics

Visual and Performing Arts:

APP: Artistic Perception Proficient Level
APA: Artistic Perception Advanced

CEP: Creative Expression Proficient
CEA: Creative Expression Advanced
HCCP: Historical & Cultural Proficient
HCCA: Historical & Cultural Advanced
AVP: Aesthetic Valuing Proficient
AVA: Aesthetic Valuing Advanced
CRP: Connections, Relationships, Proficient
CRA: Connections, Relationships, Advanced

ELA: English-Language Arts with in VPA

ELA- LRA: Literary Response and Analysis
ELA-WSA: Writing Strategies & Applications
ELA-WOELC: Written & Oral English Language Conventions

Sectors

AME Arts, Media and Entertainment
BTC Building Trades and Construction
ECDFS Education, Child Development & Family Services
EU Energy & Utilities
ED Engineering & Design
FID Fashion and Interior Design
FAB Finance and Business
HSMT Health Science & Medical Technology
HTR Hospitality, Tourism & Recreation
IT Information Technology
MPD Manufacturing and Product Development
MSS Marketing, Sales, & Services
PS Public Services
T Transportation