CareerClusters™ PATHWAYS TO COLLEGE & CAREER READINESS
Architecture & Construction

Learning that works for Colorado CTE®

Colorado CTE Course – Scope and Sequence

Course Name	Advanced Woodworking and Carpentry	Course Details Course = 0.50 Carnegie Unit Credit	Credit= 1.0 Prerequisite: Completion of level 3 coursework or Woodworking Technology III
Course Description	Advanced Woodworking and Carpentry is designed to introduce advanced skills for residential carpentry. Topics included in the course are cabinetry construction and installations, advanced trim work, flooring, custom cabinetry, and codes and regulations.		
Note:	This is a suggested scope and sequence for the course content. The content will work with any textbook or instructional resource. If locally adapted, make sure all essential knowledge and skills are covered.		
SCED Identification #	17003	Schedule calculation based on 60 calendar days of a 90-day semester. Scope and sequence allows for additional time for guest speakers, student presentations, field trips, remediation, or other content topics.	

All courses taught in an approved CTE program must include Essential Skills embedded into the course content. The Essential Skills Framework for this course can be found at https://www.cde.state.co.us/standardsandinstruction/essentialskills

Instructional Unit Topic	Suggested Length of Instruction	CTE or Academic Standard Alignment	Competency / Performance Indicator	Outcome / Measurement	CTSO Integration
Safety and Employability Skills		Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Engineering and Architecture sector workplace environment. Demonstrate competence in various construction processes in the cabinetmaking, furniture making, and mill working	Interpret policies, procedures, and regulations for the workplace environment, including employer and employee responsibilities. Student is expected to: (A) use health and safety practices for storing, cleaning, and maintaining tools, equipment, and supplies; (B) set up a work area, or shop, to avoid potential health concerns and	Students complete a variety of hands-on safety demonstration assessments for specific tools and equipment. Student demonstrates employability skills: • Conduct research, both small and on a larger scale, on specific assigned topics such as safety and machine tool use. • Ask and answer questions using industry terminology.	

		industries. Competencies will vary according to project or topic.	safety hazards, including but not limited to electrical (shock), wires (tripping), fumes (lung health), noise (hearing loss), fire (burns), and so forth, incorporating ergonomics; (C) practice personal safety when lifting, bending, or moving equipment and supplies; (D) demonstrate how to prevent and respond to work-related accidents or injuries; this includes demonstrating an understanding of ergonomics; (E) maintain a safe and healthful working environment; (F) be informed of laws/acts pertaining to the Occupational Safety and Health Administration (OSHA); (G) report hazards found on the job	• Interpret information from a variety of documents. • Follow specific policies and procedures for safety and equipment use. • Maintain tools and equipment according to industry specifications. • Set up and maintain shop to avoid health concerns or safety hazards. • Practice personal safety when handling materials or machinery. • Report hazards in the shop	

			site to supervisor/teacher; (H) locate and adhere to Safety Data Sheet (SDS) instructions; (I) maintain proper use of safety apparel at all times, including but not limited to, eye protection, hearing protection, skin protection, head protection, footwear and protection from airborne particulate matter; (J) comply with the safe handling, storage and disposal of chemicals, materials and adhesives in accordance with local, state, and federal safety and environmental regulations (OSHA, Environmental Protection Agency [EPA], Hazard Communication [HazCom], Safety		

			Data Sheets [SDS], etc.); and (K) demonstrate the proper care and safe use of hand, portable and stationary power tools.		
Cabinet Construction		Demonstrate advanced skills in cabinet construction.	Demonstrate advanced skills in cabinet construction. Student is expected to: (A) demonstrate advanced layout and design skills; (B) apply knowledge of wood products and materials used in the furniture and cabinetmaking industry; (C) understand finishes and when to apply paint, stains, sealers, varnishes, and catalyzed finishes, including water- and oil-based finishes (D) use and apply knowledge of advanced woodworking tools; and	Research and explore advanced various cabinetry, millwork, and woodworking tools and techniques through research, discussion, and project based tasks. Tour the shop and answer a variety of questions requiring them to name and describe the various machines and tools and their primary functions/uses. Students demonstrate an understanding of the processes required to mill coves, tapers, cabriole legs, dovetail joints, compound angles, curved moldings, and tambour roll tops. Describe the procedures of bending wood by steam, dry and wet methods.	

			(E) apply advanced cabinet construction and assembly techniques.	Learn the current process of veneer and lay-work using several different types of materials. Design and construct a functional project that integrates veneer or laminate with wood. Students will select plastic laminate, calculate needed size, rough-cut, laminate and perform appropriate trim and finish detail to required sample board. Students will present their products and organize them into their coursework portfolio. Given a specific task, each student will construct a particular shop fixture that is designed to serve a purpose in cabinet construction assembly.	
Cabinet Installation		Demonstrate proper techniques for cabinet installation.	Demonstrate competence in planning, design, layout, and technical drawing interpretation for practical use in cabinetmaking and mill working. Students is expected to: (A) identify common sizes in relation to furniture and cabinets;	Explore functional and aesthetic elements of furniture design throughout history. Identify the various phases of woodworking design processes. Describe how to assemble, sand, and finish cabinets. a. Describe the process of cabinet assembly. b. Describe how to properly sand	

			(B) describe the relationship between the function and form of a cabinet; (C) calculate board, square, and linear feet; and (D) estimate material costs. Differentiate between the various furniture and cabinet styles used in the cabinet and furniture industry. Student is expected to: (A) Identify various cabinet styles and list characteristics of traditional, provincial, and contemporary designs; (B) compare and contrast the advantages and disadvantages of using laminates verses using veneers; (C) install various cabinets and countertops; and (D) identify various practical	cabinets. c. Describe how to apply sealers, wood fillers, and stains. Describe how to prepare and apply laminate to a countertop. a. Identify basic considerations for laminate installation. b. Describe how to lay out and cut laminates. c. Describe how to apply laminate to a countertop. Demonstrate installation of base and wall cabinets.	

			components of various furniture types. Demonstrate proper techniques for cabinet installation.		
Advanced Trim Work		Understand and apply knowledge of finish carpentry techniques and materials.	Demonstrate advanced methods for interior finishes and trim work. Student is expected to: (A) identify finish and trim materials; (B) demonstrate techniques for installation of base and casing; (C) demonstrate installation for scribe and crown moulding; and (D) demonstrate methods for installation of pre-hung and custom doors.		
Flooring Inlay		Understand and apply knowledge of wood and engineered-wood flooring materials and installation methods.	Understand the installation of hardwood or engineered-wood flooring and inlays. Student is expected to: (A) Explain and perform proper layout and		

			initialization for installation; (B) Perform various cut for fitting flooring materials; (C) Understand proper clearances and how to maintain them; (D) Demonstrate ability to properly install flooring; (E) Compare and contrast wood flooring materials; and (F) demonstrate knowledge of finishing techniques and strengths and weaknesses of each.		
Custom Built-in Cabinetry		Use and apply knowledge of construction materials and techniques for custom or built-in cabinetry and/or shelving.	Apply construction techniques for custom or built-in cabinetry and/or shelving. Student is expected to: (A) understand the materials used to create custom or built-in projects; (B) apply the design process for creating custom or built-in projects;		

			(C) use shop drawings to communicate the design to the customer; and (D) demonstrate		
Codes and regulations		Understand and apply information about state and local building codes.	Understand the permitting process for residential construction projects. Student is expected to: (A) compare the differences between residential and commercial codes; (B) explain how a building permit incorporates local building codes; (C) investigate local building regulations; (D) understand the local building permitting process; (E) outline the building inspection process; and (F) explain the purpose and procedure for obtaining a Certificate of Occupancy.		
Career Development		Integrate multiple sources of career information from diverse formats to make	Student is expected to: (A) understand the importance of	Update materials from coursework to add to the student's portfolio.	Updates to ICAP

		informed career decisions, solve problems, and manage personal career plans.	creating a portfolio for employment purposes; (B) understand the advanced education and training options that align with their career goals and objectives; (C) understand the employability skills necessary for entry-level and advancing employment; and (D) explore entrepreneurial opportunities in the industry.	Continually reflect on coursework experiences and revise and refine the career plan generated in the introductory course. Include written descriptions of drawing types and learning outcomes, as well as photographs of work. Research local employment opportunities and their requirements. Analyze gaps in knowledge or experience and identify opportunities to remediate those gaps. Discuss how to leverage work-based learning experiences for entry-level or career advancement opportunities. Investigate the local gig economy for construction. Discuss what opportunities the gig economy presents for construction entrepreneurs.	SkillsUSA Cabinetmaking Competition
