# Scope & Sequence

|  |  |  |  |
| --- | --- | --- | --- |
| Course Name: Mill and Cabinetmaking Technology **PEIMS Code:**  13005300 | | | **Course Credit:** 2.0  **Course Requirements:** Grade 10-12.  **Prerequisites:**  None.  **Recommended Prerequisites:** Principles of Architecture and Principles of Construction. |
| **Course Description:** In Mill and Cabinetmaking Technology, students will gain knowledge and skills needed to enter the workforce in the area of mill work and cabinet manufacturing and installation. Students may also apply these skills to professions in carpentry or building maintenance supervision or use the skills as a foundation for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in cabinet design, tool usage, jointing methods, finishes, and industry-level practices such as numerical and computer-control production methods. | | | |
| **NOTE:** This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered. | | | |
| **Total Number of Periods**  **Total Number of Minutes**  **Total Number of Hours** | 350 Periods.  15,750 Minutes.  262.5 Hours.\* | \*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc. | |
| **Unit Number, Title, and Brief Description** | **# of Class Periods\***  (assumes 45-minute periods)  Total minutes per unit | **TEKS Covered**  **130.50 (c) Knowledge and skills** | |
| **Unit 1: Orientation/Health and Safety**  Students will discuss a brief history of the early development of cabinetmaking from the past to the present day and the ramifications of the changes that have taken place over time. Students will become familiar with general shop safety rules and practices in cabinet/millwork, information and instruction in the use of professional tools for the woodworking trades. Emphasis will be placed on the safe use of each tool covered as students work on various projects or simulated activities. | 15 periods  675 minutes | (4) The student knows the function and application of the tools, equipment, technologies, and materials used in mill and cabinetmaking. The student is expected to:  (A) use in a safe manner hand and power tools and equipment commonly employed in mill and cabinetmaking;  (C) demonstrate the proper procedures to saw, plane, shape, turn, bore, mortise, and sand various types of woods; and  (D) demonstrate knowledge of new and emerging technologies that may affect mill and cabinetmaking. | |
| **Unit 2: Cabinet Materials**  Students will explore the core concepts and skills of masonry. Students will work on classroom activities that include fasteners, wood products, finishing materials, manufactured products for cabinet making, and introduction to estimation of products and services. In addition, students may explore parts identification, cabinet styles and floor plan arrangements. | 15 periods  675 minutes | (3) The student knows the concepts and skills that form the core knowledge of mill and cabinetmaking. The student is expected to:  (A) demonstrate knowledge of cabinetmaking design;  (B) demonstrate knowledge of the use of woods, fasteners, hardware, glass, and mirrors; and  (C) demonstrate knowledge of the industrial processes and procedures used in mill and cabinetmaking. | |
| **Unit 3: Fundamentals of Cabinetmaking**  Students will be introduced to the fundamentals of wood joint identification and application, layout, cutting out cabinet components, and the procedures used for assembly of cabinet bases, wall units, and free frames. Student activities and simulated projects can include equipment safety, frame member cutting, shelf cutting, drawer component and door cutting, material optimizing, and material estimation. | 30 periods  1,350 minutes | (5) The student applies the concepts and skills of mill and cabinetmaking to simulated and actual work situations. The student is expected to:  (A) identify and construct the various joints used in cabinetmaking;  (3) The student knows the concepts and skills that form the core knowledge of mill and cabinetmaking. The student is expected to:  (C) demonstrate knowledge of the industrial processes and procedures used in mill and cabinetmaking. | |
| **Unit 4: Cabinet Design and Layout**  Students will discuss the planning, design, and layout of cabinet units. Emphasis will be placed on adherence to blueprint specifications. Topics include: parts identification, cabinet styles and floor plan arrangements, estimation procedures, layout to specifications, shop working sketches, shop management and CAD. | 30 periods  1,350 minutes | (2) The student relates core academic skills to the requirements of mill and cabinetmaking. The student is expected to:  (B) complete work orders and related paperwork;  (C) estimate supplies, materials, and labor costs for work orders;  (D) apply the principles of mathematics for accurate standard and metric measurements; and  (E) read and interpret appropriate blueprints, drawings, charts, and diagrams. | |
| **Unit 5: Cabinet Assembly**  Students will become familiar with the fundamental procedures used for assembly of cabinet components such as bases, wall units, door and drawer assembly and face frames. Students will also be introduced to procedures for the application of plastic, laminates, and wood veneers. Students will be able to perform tasks that include door and drawer fabrication, laminate, veneer, and glue, cutting and fitting procedures, gluing procedures, trimming and edge banding, special tool use, safety precautions and counter top cutting. | 70 periods  3,150 minutes | (5) The student applies the concepts and skills of mill and cabinetmaking to simulated and actual work situations. The student is expected to:  (B) demonstrate the proper procedures to glue, clamp, laminate, veneer, and inlay wood;  (C) demonstrate the proper procedures to construct and install cabinet doors, furniture doors, drawers, drawer guides, shelves, cabinet interiors, legs, posts, table tops, and cabinet tops; | |
| **Unit 6: Cabinet Installation**    Students will be introduced to procedures for the installation of assembled drawers, doors, and related hardware. Emphasis will be placed on the safe use of hand and power tools. Students will enhance their skills in tool safety, hardware identification and installation including special metal fasteners and adhesives. Students will be given multiple opportunities to demonstrate their technical knowledge and skills in the field of mill and cabinetmaking with “hands-on” activities, presentations, discussions, and inspections in simulated or actual installation projects. | 50 periods  2,250 minutes | (4) The student knows the function and application of the tools, equipment, technologies, and materials used in mill and cabinetmaking. The student is expected to:  (A) use in a safe manner hand and power tools and equipment commonly employed in mill and cabinetmaking;  (5) The student applies the concepts and skills of mill and cabinetmaking to simulated and actual work situations. The student is expected to:  (C) demonstrate the proper procedures to construct and install cabinet doors, furniture doors, drawers, drawer guides, shelves, cabinet interiors, legs, posts, table tops, and cabinet tops; and  (D) apply proper finishing techniques. | |
| **Unit 7: Cabinet Finishing Techniques**  Students will explore surface preparation, wood finishing procedures, and transporting and installation of cabinets. Students will utilize finishing procedures that emphasize the use of spray equipment. Students will expand their knowledge through project work on topics such as fire prevention, air pollutant, reduction, abrasives identification, finishing materials identification, surface preparation, surface treatment application, repair and touch up procedures, hazardous material disposal, safe use of ladders and scaffolds, cabinet transporting and installation, cabinet trim procedures, and other finishing techniques. | 40 periods  1,800 minutes | (4) The student knows the function and application of the tools, equipment, technologies, and materials used in mill and cabinetmaking. The student is expected to:  (B) handle and dispose of environmentally hazardous materials used in mill and cabinetmaking;  (5) The student applies the concepts and skills of mill and cabinetmaking to simulated and actual work situations. The student is expected to:  (C) demonstrate the proper procedures to construct and install cabinet doors, furniture doors, drawers, drawer guides, shelves, cabinet interiors, legs, posts, table tops, and cabinet tops; and  (D) apply proper finishing techniques. | |
| **Unit 8: CNC Woodworking**  Students will become familiar with CNC machines and CAD files. Students will explore software, machine operation safety, CNC machine operation, material preparation, tooling, data manipulation, production analysis, and maintenance of equipment while working on simulated activities and/or projects. | 45 periods  2,025 minutes | 1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (D) apply the competencies related to resources, information, systems, and technology in appropriate settings and situations; and  (E) demonstrate knowledge of the concepts and skills related to health and safety in the workplace, as specified by appropriate governmental regulations | |
| **Unit 9: Shop Management**  Students will be introduced to principles and practices required in the operation of a custom cabinet and architectural millwork shop. Students will have the opportunity to expand their knowledge of health and safety regulations, communicating with clients/customers and co-workers, completing work orders and other paperwork, workflow and shop organization, job estimation, equipment maintenance, and shop safety. Students will also identify and apply the preparation, technical writing, and mathematical skills necessary to complete paperwork associated with various customer service scenarios in cabinetmaking. | 25 periods  1,125 minutes | (2) The student relates core academic skills to the requirements of mill and cabinetmaking. The student is expected to:  (A) demonstrate effective verbal and written communication skills with individuals from varied cultures, including fellow workers, managers, and customers;  (B) complete work orders and related paperwork;  (C) estimate supplies, materials, and labor costs for work orders;  (D) apply the principles of mathematics for accurate standard and metric measurements; | |
| **Unit 10: Employability Skills**  Students will apply math, communication skills, reading for information, and locating information. Students will practice appropriate work habits, teamwork, and leadership roles. Students will expand their understanding of employment opportunities and professional requirements as well as certification standards. | 30 periods  1,350 minutes | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) identify employment opportunities, including entrepreneurship and preparation requirements, for mill and cabinetmaking;  (B) demonstrate an understanding of group participation and leadership related to citizenship and career preparation;  (C) identify employers' expectations for appropriate work habits Enter TEKS | |