CareerClusters™ PATHWAYS TO COLLEGE & CAREER READINESS
Architecture & Construction

Learning that works for Colorado CTE®

Colorado CTE Course – Scope and Sequence

Course Name	Metal Working I	Course Details Course = 0.50 Carnegie Unit Credit	Credit: 0.5 Prerequisite: Level 3 Construction course CTE Credential: CTE Architecture and Construction
Course Description	This class which emphasizes shop safety will allow students to develop basic skills in various areas of the metalworking industry such as welding, pipes, metal manipulation, equipment, etc. This course is intended to provide students in the construction pathways with basic knowledge of metalworking and not intended as a pathway course for welding.		
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 #	13055	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		Interpret policies, procedures, and regulations for the workplace environment, including employer and employee responsibilities.	Comply with standard industry and classroom safety requirements. Student is expected to: (A) locate, and adhere to, Material Safety Data Sheet (MSDS) instructions; (B) apply Personal Protective Equipment (PPE) precautions; (C) use health and safety practices for storing, cleaning, and maintaining	Identify the benefits of knowing and applying basic safety procedures in both an agricultural laboratory and workplace. Interpret current Occupational Safety and Health Administration (OSHA) guidelines to conduct a compliance review of the construction laboratory, including a written summary justifying the findings with recommendations for improving the safety of working conditions.	

			tools, equipment, and supplies; (D) be informed of laws/acts pertaining to the Occupational Safety and Health Administration (OSHA).	Review common laboratory safety procedures for tool and equipment operation in the construction laboratory, including but not limited to accident prevention and control procedures. Demonstrate the ability to follow safety and operational procedures in a lab setting and complete a safety test with 100 percent accuracy.	
Welding Overview		Understand and apply metal working techniques to a variety of construction applications. *** Additional Metalworking standards can be found in the Welding Course Scope and Sequence Documents.	The student performs appropriate cold and hot metal techniques. The student is expected to: (A) identify types of metal; (B) cut, file, shape, and drill metal; (C) select and operate oxy-fuel welding and cutting equipment to meet standards; (D) select and operate electric-arc welding equipment to meet standards; and (E) perform specialty welding and cutting	Compare and contrast the physical and chemical properties of arc welding, metal inert gas (MIG) welding, gas welding, soldering, and brazing. Demonstrate the ability to precisely follow operational and safety procedures for each fusion process across various applications. Classify the physical and chemical properties associated with various metal-cutting methods. Demonstrate adherence to operational and safety procedures for using oxy -fuel or plasma in applications involving mild steel, copper, sheet metal, and cast iron.	

			techniques to meet standards.	Select and demonstrate the best method to construct, connect, or repair metallic and non-metallic materials for a variety of construction applications, including but not limited to plumbing, sheeting, and equipment.	