CareerClusters™ PATHWAYS TO COLLEGE & CAREER READINESS
Transportation, Distribution & Logistics

Learning that works for Colorado CTE®

Colorado CTE Course – Scope and Sequence

Course Name	**Collision Estimating**	**Course Details** **Course = 0.50 Carnegie Unit Credit**	**Credit = 0.5** **CTE Credential: CTE Transportation**
Course Description	Upon completion of this course, a proficient student proficient will be able to assess collision damage, estimate repair costs, and work with vehicle owners in a professional setting. Utilizing problem-solving strategies and resources developed in this course, including original equipment manufacturer (OEM) manuals, electronic data, and photo analysis of damaged vehicles, students will be prepared to generate work orders in a variety of collision damage situations.		
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 #	20116	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		Understand and apply personal and environmental safety standards of the collision repair industry.	Comply with personal and environmental safety practices associated with clothing and the use of gloves; respiratory protection; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations. Student is expected to: a. Use and inspect personal protective equipment every time equipment is used. b. Inspect, maintain, and employ safe operating procedures with tools and equipment, such as hand		

			and power tools, ladders, scaffolding, and lifting equipment. c. Assume responsibilities under HazCom (Hazard Communication) regulations. d. Adhere to responsibilities, regulations, and Occupational Safety & Health Administration (OSHA) policies regarding reporting of accidents and observed hazards, and regarding emergency response procedures. e. Maintain a portfolio record of written safety examinations and equipment examination for which the student has passed an operational checkout by the instructor. f. Utilize MSDSs (material safety data sheets), and identify the health hazards associated with hazardous material.		
Damage Analysis		Demonstrate processes for analyzing damage sustained to an automobile.	Demonstrate processes for analyzing damage sustained to an automobile. Student is expected to: A) Analyze damage to determine appropriate repair methods B) Determine the direction, point of impact and extent of direct or indirect damage C) Identify and record pre-existing damage	Gather information from a variety of print and digital sources (such as OEM manuals and online instructional materials) as well as firsthand experiences observing a qualified technician on preparing a vehicle for damage analysis. Create a flow chart that will show the entire process of analyzing damage and estimating costs. Write an	

			D) Perform visual inspection of structural components and determine whether they should be repaired or replaced E) Be familiar with structural damage measuring equipment	accompanying text that describes how key steps are accomplished, that is, what the technician should do and observe at each step. Steps include but are not limited to the following. a. Position the vehicle for inspection. b. Prepare vehicle for inspection by providing access to damaged areas. c. Analyze damage to determine appropriate methods for overall repairs. d. Determine the direction, point(s) of impact, and extent of direct, indirect, and inertia damage. e. Gather details of the incident/accident necessary to determine the full extent of vehicle damage. f. Identify and record pre-existing damage. g. Identify and record prior repairs. Accurately complete a summary of damages on a claim form, citing specific evidence to support the need for components, parts, and labor necessary to repair the vehicle. Formulate a list of needed	

				parts necessary to repair the vehicle to OEM standards. Identify suspension, electrical, and mechanical elements as well as interior damage. a. Perform visual inspection of structural components and members. b. Identify structural damage using measuring tools and equipment. c. Perform visual inspection of non-structural components and members. d. Determine parts, components, material type(s) and procedures necessary for a proper repair. e. Identify type and condition of finish; determine if refinishing is required. f. Identify suspension, electrical, and mechanical component physical damage. g. Identify safety systems physical damage. h. Identify interior component damage. i. Identify damage to add-on accessories and modifications.	

				j. Identify single (one time) use components.	
Damage Estimating		Understand and apply processes for determining an estimate of repair for automotive collision damage.	Understand and apply processes for determining an estimate of repair for automotive collision damage. Student is expected to: A) Determine the parts and procedures needed to complete the repair B) Determine the paint finish and any necessary refinishing C) Identify mechanical and suspension damage D) Document vehicle information correctly E) Identify and de code V.I.N. numbers F) Identify and record vehicle options G) Apply appropriate estimating and parts nomenclature (terminology) H) Correct use of Mitchell collision guides I) Apply proper estimating sequence	Compile evidence from the vehicle and owner/operator, including pictures and written summaries, to ascertain damage, determine make and model, and identify VIN information necessary to determine appropriate OEM parts. a. Determine and record customer/vehicle owner information. b. Identify and record vehicle identification number (VIN) information, including nation of origin, make, model, restraint system, body type, production date, engine type, and assembly plant. c. Identify and record vehicle options, including trim level, paint code, transmission, accessories, and modifications. d. Identify safety systems; determine replacement items. e. Apply appropriate estimating and parts	

				nomenclature (terminology). f. Determine and apply appropriate estimating sequence. g. Utilize estimating guide procedure pages. Using the created flow chart, the narratives, and photo analysis, ascertain whether parts will be aftermarket, recyclable, rebuilt, or reconditioned. Based on the information gathered, develop a cost analysis of parts and labor value for each operation required. Determine the extent of direct and indirect damage and direction of impact; develop and document a repair plan that includes summary of damage, recommended repairs, costs of parts and labor, and necessary finishing. Review, edit, and revise plan based on peer and instructor feedback a. Apply estimating guide footnotes and headnotes as needed. b. Estimate labor value for operations requiring judgment.	

				c. Select appropriate labor value for each operation (structural, non-structural, mechanical, and refinish). d. Select and price OEM parts; verify availability, compatibility, and condition. e. Select and price alternative/optional OEM parts; verify availability, compatibility and condition. f. Select and price aftermarket parts; verify availability, compatibility, and condition. g. Select and price recyclable/used parts; verify availability, compatibility and condition. h. Select and price remanufactured, rebuilt, and reconditioned parts; verify availability, compatibility and condition. i. Determine price and source of necessary sublet operations. j. Determine labor value, prices, charges, allowances, or fees for non-included operations and miscellaneous items.	

				Consult print and digital resources, such as invoicing templates and OEM parts manuals, to prepare written work orders for documentation of a collision repair service. Synthesize information about the number and cost of parts, and detail the extent of the services involved. Apply quantitative math skills to develop an accurate cost analysis; then compile the work order using a manual template or word processing software. a. Recognize and apply overlap deductions, included operations, and additions. b. Determine additional material and charges. c. Determine refinishing material and charges. d. Apply math skills to establish charges and totals. e. Interpret computer-assisted and manually written estimates; verify the information is current.	

				f. Identify procedural differences between computer-assisted systems and manually written estimates. g. Identify procedures to restore corrosion protection; establish labor values and material charges. h. Determine the cost effectiveness of the repair and determine the approximate vehicle retail and repair value. i. Recognize the differences in estimation procedures when using different information provider systems. j. Verify accuracy of estimate compared to the actual repair and replacement operations.	
Vehicle Construction and Parts ID		Understand vehicle construction and parts identification processes used in collision damage and repair appraisal estimation.	Understand vehicle construction and parts identification processes used in collision damage and repair appraisal estimation. Student is expected to: A) Apply appropriate labor value B) Select and price proper parts, either o.e.m, Jobber, or recycled	Consult OEM parts manuals and electronic data to determine cost of components and accessories for various makes and models of vehicles. Write explanatory narratives that examine and define the various components, establish the repairability of those components, and integrate	

			C) Determine and price appropriate sublet operations D) Recognize and apply overlap, where applicable E) Determine refinishing material and charges F) Identify types of vehicle construction G) Recognize damage characteristics for different types of vehicles H) Identify plastic repair and replace procedure I) Identify steel repair and replace procedures J) Identify impact absorber components and repair/replace procedures	the information accurately into the work order. a. Identify type of vehicle construction (space frame, unibody, body-over-frame). b. Recognize the different damage characteristics of space frame, unibody, and body-over-frame vehicles. c. Identify impact energy absorbing components. d. Identify steel types; determine repairability. e. Identify aluminum/magnesium components; determine repairability. f. Identify plastic/composite components; determine repairability. g. Identify vehicle glass components and repair/replacement procedures. h. Identify add-on accessories.	
Customer Service and Sales		Understand and apply terminology for the collision repair and appraisal industry. Understand and apply effective communication skills for customer relations.	Understand and apply effective communication skills for customer relations. Student is expected to: A) Describe exceptional customer service. B) Identify the benefits of great customer service.	Interact respectfully with individuals involved in various aspects of customer service, including OEM representatives, customers/clients, insurance representatives, and suppliers. Resolve conflicts and differences to maintain a smooth	

			C) Recognize barriers to the delivery of outstanding customer service. D) Adapt to specific customer behavior styles. E) Demonstrate how to measure customer-satisfaction levels and take corrective action if needed. F) Understand collision repair-related terminology for effective communication for the collision repair and refinishing industry.	workflow. Individually craft written scenarios narrating a challenging customer interaction and use the scenarios to practice effective communication techniques in a role-play. Research negotiation skills and apply them to workplace scenarios. a. Acknowledge and/or greet customer/client. b. Listen to customer/client; collect information and identify customer's/client's concerns, needs, and expectations. c. Establish cooperative attitude with customer/client. d. Identify yourself to customer/client; offer assistance. e. Deal with angry customer/client. f. Identify customer/client preferred communication method; follow up to keep customer/client informed about parts and the repair process. g. Recognize basic claims handling procedures; explain to customer/client.	

				h. Project positive attitude and professional appearance. i. Provide and review warranty information. j. Provide and review technical and consumer protection information. k. Estimate and explain duration of out-of-service time. l. Apply negotiation skills to obtain a mutual agreement. m. Interpret and explain manual or computer-assisted estimate to customer/client.	
Career Development		Identify long-term career goals, including Work-Based Learning (WBL) experience that align with career interests and objectives.	Analyze goals related to career interests and planning. Student is expected to: (A) Draw connections between the experience and course content, thoughtfully reflecting on: a. Acquired leadership skills b. Problem-solving techniques and decision-making skills c. Team member participation in a learning environment d. Personal career development e. Opportunities for industry certifications	Update the student's career and academic plan. Create a portfolio, or similar collection of work, offering evidence to illustrate mastery of skills and knowledge as outlined in the standards above. The portfolio should reflect thoughtful assessment and evaluation of the student's progression of work involving the estimation of damage to a vehicle and adherence to Materials Safety Data Sheets (MSDS). The following documents	

				will reside in the student's electronic career portfolio: a. Personal code of professional ethics b. Career and professional growth plan c. List of responsibilities undertaken throughout the course d. Examples of visual materials developed and used during the course (such as graphics, presentation slides, videos, demonstrations) e. Description of technology used, with examples if appropriate f. Periodic journal entries reflecting on tasks and activities g. Feedback from instructor based on observations	
