

## Colorado CTE Course – Scope and Sequence

<b>Course Name</b>	<b>Sport Vehicle Technology</b>		<b>Course Details</b>	<b>Credits= 2.0</b>	
			<b>Course = 0.50 Carnegie Unit Credit</b>	<b>Prerequisites: Principles of Transportation Systems (recommended)</b>	
				<b>CTE Credential= CTE Transportation</b>	
<b>Course Description</b>	Sport Vehicle Repair Technology is a course designed to give students an entry level education in the world of sport vehicle repair. Students will be introduced and focus on safety, tools and equipment, fasteners, measuring, engine identification (2 and 4 stroke), inspection, basic engine principles and design. Industry workforce readiness skills, communication, and writing techniques are also emphasized daily.				
<b>Note:</b>	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 #	20102	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 <a href="https://www.cde.state.co.us/standardsandinstruction/essentialskills">https://www.cde.state.co.us/standardsandinstruction/essentialskills</a>					
Instructional Unit Topic	Suggested Length of Instruction	CTE or Academic Standard Alignment	Competency / Performance Indicator	Outcome / Measurement	CTSO Integration
<b>Safety</b>		<p>Understand personal safety and environmental practices in accordance with OSHA safety regulations.</p> <p>Identify employers' expectations regarding safe and appropriate work habits, ethical conduct, and environmental responsibilities in the fields of automotive service.</p>	<p>Assess and practice safety procedures to ensure compliance with personal safety and environmental practices in accordance with OSHA safety regulations.</p> <p>Student is expected to:</p> <p>(A) identify procedures to ensure compliance with personal and environmental safety practices associated with clothing; respiratory protection; eye</p>	<p>Student demonstrates safe employment shop practices:</p> <ul style="list-style-type: none"> <li>Identifies general shop safety rules and procedures.</li> <li>Utilizes safe procedures for handling of tools and equipment.</li> <li>Utilizes proper ventilation procedures for working within the lab/shop area.</li> </ul> <p>Identifies the location and the types of fire</p>	

			<p>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 practices.</p>	<p>extinguishers and other fire safety equipment; demonstrates knowledge of the procedures for using fire extinguishers and other safety.</p> <p>Obtain OSHA 10 or S/P2 Safety certification.</p>	
<b>Sport Vehicle Industry</b>		<p>Understand and identify work standards for the Sport Vehicle Industry.</p>	<p>Apply sport vehicles industry standards and practices.                      Student is expected to:</p> <ul style="list-style-type: none"> <li>(A) demonstrate ability to identify motorcycle models and vehicle identification numbers.</li> <li>(B) identify various sport vehicle types and the characteristics of each as it pertains to the repair and service process.</li> <li>(C) identify major structural and non-structural components, sections, and assemblies of various types of sport vehicles.</li> </ul>		
<b>Chassis</b>		<p>Understand inspection and repair processes for sport vehicle chassis.</p>	<p>Student understands and apply knowledge and technical skills of sport vehicle</p>		

			<p>chassis. Student is expected to:</p> <ul style="list-style-type: none"> <li>(A) identify and diagram a minimum of four frame types including special features of each;</li> <li>(B) demonstrate ability to inspect frames for flaws and damage;</li> <li>(C) identify appropriate procedures used to inspect and repair motorcycle frames;</li> <li>(D) identify and diagram telescopic fork components including special features;</li> <li>(E) demonstrate ability to inspect motorcycle suspension systems for flaws and damage; and</li> <li>(F) identify appropriate procedures used to inspect and repair motorcycle suspension systems.</li> </ul>		
<b>Electrical Theory</b>		Understand the scientific principles related to power and electricity.	(A) Understand electrical theory to sport vehicle repair	State basics of Electron Theory:	

		<p>Understand and apply electrical theory to sport vehicle inspection and repair processes.</p>	<p>processes. Student is expected to:</p> <p>(B) use wiring diagrams during diagnosis of electrical circuit problems. Check electrical circuits with a test light; determine necessary action;</p> <p>(C) check voltage and voltage drop in electrical/electronic circuits using a digital multi-meter (DMM); determine necessary action.</p> <p>(D) Check current flow in electrical/electronic circuits and components using an ammeter; determine necessary action;</p> <p>(E) check continuity and resistances in electrical/electronic circuits and components with an ohmmeter; determine necessary action.</p> <p>(F) check electrical circuits using jumper wires; determine necessary action;</p> <p>(G) inspect and test fusible links, circuit breakers, and fuses;</p>	<ul style="list-style-type: none"> <li>• Conductors, semi-conductors and Insulators</li> <li>• Current flow theory - electron, conventional</li> </ul> <p>Demonstrates knowledge of electrical/electronics series, parallel, and series-parallel circuits using principles of electricity (Ohm's Law). P-1 Uses wiring diagrams to trace electrical/electronic circuits. P-1 Demonstrate knowledge of the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits. P-2 Checks operation of electrical circuits with a test light. P-2 Checks operation of electrical circuits with fused jumper wires. P-2</p>	
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			<p>determine necessary action; and</p> <p>(H) inspect and test switches, connectors, relays, and wires of electrical/electronic circuits; perform necessary action.</p>		
<b>Engines</b>			<p>Discuss basic Two-Stroke engine theory and related topics. Student is expected to:</p> <p>(A) list correct operating sequence of events that occur in Two-Stroke engine operation;</p> <p>(B) identify, list and diagram the majority of mechanical components used in Two-Stroke engine construction;</p> <p>(C) demonstrate ability to inspect and determine condition of Two-Stroke engine components;</p> <p>(D) demonstrate ability to correctly disassemble and re-assemble Two-Stroke engines and related assemblies; and</p> <p>(E) demonstrate ability to correctly identify and</p>		

			<p>apply correct Two-Stroke engine repair procedures.</p> <p>Discuss basic Four-Stroke engine theory and related topics. Student is expected to:</p> <ul style="list-style-type: none"> <li>(A) list correct operating sequence of events that occur in Four-Stroke engine operation.</li> <li>(B) identify, list and diagram the majority of mechanical components used in Four-Stroke engine construction.</li> <li>(C) demonstrate ability to inspect and determine condition of Four-Stroke engine components.</li> <li>(D) demonstrate ability to correctly disassemble and re-assemble Four-Stroke engines and related assemblies.</li> <li>(E) demonstrate ability to correctly identify and apply correct Four-Stroke engine repair procedures.</li> </ul>		
<b>Drive Systems</b>			Identify and diagram several transmission types including		

			<p>special features. Student is expected to:</p> <ul style="list-style-type: none"> <li>(A) demonstrate understanding of transmission operation and gear ratio selection using mathematical equations.</li> <li>(B) identify transmission parts</li> <li>(C) understand clutch systems assembly in a variety of vehicles.</li> </ul>		
<p><b>Tires and Wheels</b></p>			<p>Student is expected to:</p> <ul style="list-style-type: none"> <li>(A) identify various motorcycle tires designs and their correct application.</li> <li>(B) demonstrate ability to repair and replace motorcycle tires as needed.</li> <li>(C) demonstrate ability to inspect wheels for damage and repair as needed, including replacing spokes and adjusting (straightness of) motorcycle wheels.</li> <li>(D) demonstrate ability to inspect and replace wheel bearings as needed.</li> </ul>		

<p><b>Brakes</b></p>			<p>Student is expected to:</p> <ul style="list-style-type: none"> <li>(A) identify and diagram a minimum of two Brake system types including special features of each.</li> <li>(B) demonstrate ability to inspect Brake systems damage/wear and repair as needed, including replacing brake pads/shoes and related fluids.</li> </ul>		
<p><b>Career Planning</b></p>			<p>Student is expected to:</p> <ul style="list-style-type: none"> <li>(A) list various job titles and identify specific areas of employment within the sport vehicle repair industry, and describe the working environment.</li> <li>(B) determine the demand for entry-level technicians, and list skills employers expect of entry-level technicians.</li> </ul>		



