



## Scope and Sequence Curriculum Outline

**Career Program:** Automotive Collision Technology I

**DOE Code:** 5514

**Career Cluster:** Transportation

**Recommended Grade Levels:** 11, 12

**Prerequisites:** None

**High School Credits:** 3 per semester (6 total per school year)

**Additional Information:** Counts as a Directed Elective or Elective for the General, Core 40, Academic Honors and Technical Honors diplomas

**Program Description:** Automotive Collision Technology I students have both classroom and laboratory experiences in all phases of the body repair process. Students examine the characteristics of body metals including the installation of moldings, ornaments, and fasteners with an emphasis on sheet metal analysis and safety. Students also study measurement principles, computerized frame diagnosis, computerized color-mixing, and estimation of repair costs. Both personal and environmental safety is stressed following OSHA standards.

**Alignment:** Indiana Department of Education Academic Standards Course Framework; I-CAR (Inter-Industry Conference on Auto Collision Repair) Professional Development Program – Education Edition curriculum; ASE (National Institute for Automotive Service Excellence) student certification; Vincennes University (dual credit agreement)

**Companion Documents:** WCC Automotive Collision Technology I Program Syllabus; WCC High School Pathway Plan; WCC Program Description Guide

### Curriculum Content Summary:

- Personal/Soft Skills
- Safety/Shop Basics
- Metal Repair/Plastic Repair/Welding
- Glass/Trim/Interior
- Estimating
- Frame/Structural/Welding

Content	Indiana DOE Standards	Knowledge & Skills	Example Activities	Time Frame	Evaluation / Certification
<p><b>DOMAIN</b> Personal/Soft Skills</p> <p><b>Core Standard I</b> Students apply and adapt appropriate workplace behaviors needed for career success to prepare for further education and training programs</p>	<p><b>ACRTI-1.1</b> Identify the appropriate resources for task completion</p> <p><b>ACRTI-1.2</b> Use effective interpersonal skills to complete group assignments</p> <p><b>ACRTI-1.3</b> Demonstrate leadership skills</p> <p><b>ACRTI-1.4</b> Evaluate data for work assignments</p> <p><b>ACRTI-1.5</b> Apply concepts for effective critical thinking, decision making, and problem-solving techniques</p> <p><b>ACRTI-1.6</b> Choose appropriate tools and technology for task completion</p> <p><b>ACRTI-1.7</b> Integrate quality assurance measures and safeguards</p> <p><b>ACRTI-1.8</b> Incorporate effective listening and speaking skills</p> <p><b>ACRTI-1.9</b> Perform mathematical calculations correctly</p> <p><b>ACRTI-1.10</b> Establish a responsible work ethic</p> <p><b>ACRTI-1.11</b> Establish accepted standards for ethical behavior</p> <p><b>ACRTI-1.12</b> Develop a personal career goal and develop objectives for achieving the goal</p> <p><b>ACRTI-1.13</b> Formulate employment and career pathway opportunities related to established career interest(s)</p> <p><b>ACRTI-1.14</b> Develop a continuing education plan that identifies further education and training options</p> <p><b>ACRTI-1.15</b> Complete exams leading to certifications recognized by business and industry</p> <p><b>ACRTI-1.16</b> Develop skills needed to enter the workforce</p> <p><b>ACRTI-1.17</b> Identify resources that keep workers current in the career field</p> <p><b>ACRTI-1.18</b> Develop skills and attitudes needed for lifelong learning</p> <p><b>ACRTI-1.19</b> Devise effective money management strategies</p>	<ul style="list-style-type: none"> <li>• Reports to work daily on time</li> <li>• Able to take directions and is motivated to accomplish the task at hand</li> <li>• Dresses appropriately and uses language and manners suitable for the workplace</li> <li>• Meets and maintains employment eligibility criteria, such as drug/alcohol-free status, clean driving record, etc.</li> <li>• Demonstrates honesty, integrity, and reliability</li> <li>• Works well with all customers and coworkers</li> <li>• Negotiates solutions to interpersonal and workplace conflicts</li> <li>• Follows directions</li> <li>• Communicates effectively with customers and coworkers</li> <li>• Reads and interprets workplace documents</li> <li>• Analyzes and resolves problems that arise in completing assigned tasks</li> <li>• Organizes and implements a productive plan of work</li> <li>• Uses scientific, technical, engineering, and mathematics principles and reasoning to accomplish assigned tasks</li> <li>• Identifies and addresses the needs of all customers, providing helpful, courteous, and knowledgeable service and advice as needed</li> <li>• Identifies employment opportunities, including entrepreneurship opportunities, and certification requirements for the fields of collision repair</li> </ul>	<ul style="list-style-type: none"> <li>• Classroom activities</li> <li>• Training videos</li> <li>• Written assignments</li> <li>• Industry speakers</li> <li>• Postsecondary speakers</li> <li>• SkillsUSA membership</li> <li>• Skills competitions</li> <li>• Student ambassadors</li> <li>• NTHS</li> <li>• Field trips</li> <li>• Application of the four A's: <ul style="list-style-type: none"> <li><input type="checkbox"/> Attendance</li> <li><input type="checkbox"/> Attitude</li> <li><input type="checkbox"/> Ability</li> <li><input type="checkbox"/> Appearance</li> </ul> </li> </ul>	<p>1 week</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> <li>• Participation/lab work</li> <li>• Classroom work</li> <li>• Essential Skills Evaluation</li> <li>• Work Ethic Certification</li> </ul>

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<p><b>DOMAIN</b> Safety/Shop Basics</p> <p><b>Core Standard 2</b> Students integrate safety and basic shop procedures into activities as appropriate to comply with professional and governmental safety standards</p>	<p><b>ACRTI-2.1</b> Perform personal and shop safety practices</p> <p><b>ACRTI-2.2</b> Categorize various types of fasteners and their grades</p> <p><b>ACRTI-2.3</b> Integrate concepts to both standard and metric measurements with various types of measuring devices. The students will use rulers, calipers, dial indicators, and micrometers</p> <p><b>ACRTI-2.4</b> Use proper shop safety practices while in the lab(s)—this includes wearing safety glasses (goggles) at all times while in the lab(s)</p> <p><b>ACRTI-2.5</b> Identify various fasteners and their uses—this includes all of the various fasteners used on the automobile to attach a variety of body panels and pieces to the body and/or frame of the vehicle</p> <p><b>ACRTI-2.6</b> Identify various hand and power tools and demonstrate their safe and proper use, storage, and maintenance—this also includes proper storing and oiling of air tools</p>	<ul style="list-style-type: none"> <li>• Understands and follow Safety Data Sheets (SDS)</li> <li>• Understands supplier, workplace, and other identification labels</li> <li>• Identifies acute and chronic chemical exposure</li> <li>• Knows the different routes of hazardous chemical entry into the body</li> <li>• Understands the different hazardous chemical categories</li> <li>• Knows where the hazards are located in a collision repair facility</li> <li>• Uses the appropriate personal protective equipment for different tasks in a collision repair facility</li> <li>• Follows safety practices when working with glass, engines, batteries, fuel, and welding equipment</li> <li>• Responds properly to a hazardous materials emergency</li> <li>• Handles, disposes, and stores hazardous waste properly</li> <li>• Identifies common body shop hand and power tools</li> <li>• Chooses the correct tool for the job at hand</li> <li>• Uses each tool correctly and in a safe manner</li> <li>• Maintains the shop tools and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Lab/shop demonstrations</li> <li>• Safety glass demonstration</li> <li>• Personal safety equipment demonstrations</li> <li>• Electricity and water safety instruction</li> <li>• Grounding equipment safety instruction</li> <li>• Mixing room instruction</li> <li>• Tool and equipment identification</li> <li>• OSHA safety videos</li> </ul>	<p>2 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> <li>• S/P2 Certifications</li> <li>• Participation/lab work</li> <li>• Classroom work</li> <li>• Technical Skills Evaluation</li> </ul>

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<p><b>DOMAIN</b> Metal Repair/Plastic Repair/ Welding</p> <p><b>Core Standard 3</b> Students select appropriate procedures to repair damage to specific materials</p>	<p><b>ACRTI-3.1</b> Perform minor damage repair and surface painting preparation procedures</p> <p><b>ACRTI-3.2</b> Use welding and cutting operations as appropriate</p> <p><b>ACRTI-3.3</b> Perform outer body panel repairs per industry standards</p> <p><b>ACRTI-3.4</b> Define and describe different types of metals—this includes the identification of the various types of metals used on automobiles</p> <p><b>ACRTI-3.5</b> Gauge metals—this includes the proper use of specific measuring tools used to gauge metals</p>	<ul style="list-style-type: none"> <li>• Identifies exterior parts</li> <li>• Identifies exterior panel alignment requirements</li> <li>• Develops a repair plan</li> <li>• Identifies tools and equipment required</li> <li>• Organizes fasteners</li> <li>• Identifies bumper systems</li> <li>• Replaces front body panels</li> <li>• Aligns fenders</li> <li>• Replaces and aligns hoods</li> <li>• Replaces door assemblies</li> <li>• Aligns doors</li> <li>• Replaces rear body panels</li> <li>• Detects leaks</li> <li>• Replaces weather stripping</li> </ul>	<ul style="list-style-type: none"> <li>• Identify vehicle construction</li> <li>• Identify vehicle damage</li> <li>• Lab demonstration on aligning parts</li> <li>• Practice removing and replacing parts</li> <li>• Practice realigning parts</li> <li>• Damage repair on project and customer vehicles</li> <li>• Lab/shop demonstrations</li> </ul>	<p>18 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> <li>• I-CAR Nonstructural Modules 1-3</li> <li>• Classroom work</li> <li>• Participation/lab work</li> <li>• Technical Skills Evaluation</li> <li>• Dual credit</li> </ul>

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<p><b>DOMAIN</b> Glass/Trim/Interior</p> <p><b>Core Standard 4</b> Students select appropriate procedures to repair damage to glass, trim, and vehicle interior</p>	<p><b>ACRTI-4.1</b> Demonstrate proper procedures for removing and replacing glass</p> <p><b>ACRTI-4.2</b> Demonstrate the proper removal, installation, inspection, and replacement (if necessary) procedures of moldings and ornaments</p> <p><b>ACRTI-4.3</b> Identify repair processes for plastic and adhesives</p>	<ul style="list-style-type: none"> <li>• Locates and explains vehicle trim code labels</li> <li>• Understands different methods for removing and replacing adhesively bonded emblems</li> <li>• Understands appliques, moldings, cladding, and weather stripping attachment methods</li> <li>• Attaches trim for the front, rear, and underbody of the vehicle</li> <li>• Understands the difference between OEM and aftermarket bolt-on and adhered accessories</li> <li>• Attaches exterior trim accessories</li> <li>• Applies painted pin stripping</li> <li>• Removes pin stripping and decals</li> <li>• Applies taped pin stripping</li> <li>• Performs wet applications of a adhesively bonded decals</li> </ul>	<ul style="list-style-type: none"> <li>• Remove and replace trim on project and customer vehicles</li> <li>• Damage repair on project and customer vehicles</li> <li>• Lab/shop demonstrations</li> <li>• Lab/shop work</li> </ul>	<p>9 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> <li>• I-CAR Nonstructural Modules 1, 2 and 4</li> <li>• Classroom work</li> <li>• Participation/lab work</li> <li>• Technical Skills Evaluation</li> <li>• Dual credit</li> </ul>

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<p><b>DOMAIN</b> Estimating</p> <p><b>Core Standard 5</b> Students analyze vehicle structural damage to estimate repair costs in terms of man hours and materials needed</p>	<p><b>ACRTI-5.1</b> Calculate repair costs for various interior, exterior, mechanical, and electrical components to prepare accurate estimates to customers</p>	<ul style="list-style-type: none"> <li>• Creates a damage report</li> <li>• Utilizes estimating guides to write a damage report</li> <li>• Gathers customer information for the damage report</li> <li>• Gathers vehicle information for the damage report</li> <li>• Accesses the appropriate service and repair information, technical bulletins, specifications, parts catalogs, and other resources</li> <li>• Performs a customer consultation</li> <li>• Explains the different finish operations and the importance of corrosion protection</li> <li>• Understands other charges that are included in a damage report</li> </ul>	<ul style="list-style-type: none"> <li>• Practice damage reports, including estimating and customer consultation</li> <li>• Lab/shop demonstrations</li> <li>• Lab/shop work</li> </ul>	<p>3 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> <li>• I-CAR Estimating Module 2</li> <li>• Participation/lab work</li> <li>• Classroom work</li> <li>• Technical Skills Evaluation</li> <li>• Dual credit</li> </ul>

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<p><b>DOMAIN</b> Frame/Structural/Welding</p> <p><b>Core Standard 6</b> Students select appropriate procedures to repair vehicle frame and structural damage</p>	<p><b>ACRTI-6.1</b> Identify vehicle structural damage</p> <p><b>ACRTI-6.2</b> Perform welding and cutting operations as appropriate</p> <p><b>ACRTI-6.3</b> Diagnose and repair vehicle damage and perform structural analysis</p> <p><b>ACRTI-6.4</b> Perform unibody diagnosis, inspection, measurement, and repairs</p> <p><b>ACRTI-6.5</b> Use safe working procedures during each stage of diagnosis and repair</p>	<ul style="list-style-type: none"> <li>• Identifies the type of steel used in vehicle construction</li> <li>• Makes repair versus replace decisions on exterior panels</li> <li>• Determines the damage removal sequence</li> <li>• Removes dents using hammers and dollies, spoons and picks, adhesive, and weld-on dent removal tools</li> <li>• Removes stretched metal by shrinking</li> <li>• Selects, mixes, applies, and sands body filler</li> </ul>	<ul style="list-style-type: none"> <li>• Practice welding and cutting operations</li> <li>• Damage repair on project and customer vehicles</li> <li>• Lab/shop demonstrations</li> <li>• Lab/shop work</li> </ul>	<p>3 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> <li>• I-CAR Welding Module 1</li> <li>• Participation/lab work</li> <li>• Classroom work</li> <li>• Technical Skills Evaluation</li> <li>• Dual credit</li> </ul>