



Scope and Sequence Curriculum Outline

Career Program: Automotive Collision Technology II

DOE Code: 5544

Career Cluster: Transportation

Recommended Grade Levels: 12

Prerequisites: Automotive Collision Technology I

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 Repair Technology II introduces concepts in automotive paint technologies with an emphasis on the handling of materials and equipment. Instruction builds on concepts learned in Automotive Collision Technology I such as computerized frame diagnosis, computerized color-mixing, and computerized estimating of repair costs. Additional academic skills taught in this course include precision measurement and mathematical calibrations as well as scientific principles related to adhesive compounds, color-mixing, abrasive materials, metallurgy, and composite materials. Upon completion of this program, students are prepared for entry-level employment in the collision industry. Students may also continue their education in 2 and 4-year degree programs at the postsecondary level.

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 II Program Syllabus; WCC High School Pathway Plan; WCC Program Description Guide

Curriculum Content Summary:

- Personal/Soft Skills
- Safety/Shop Basics
- Refinishing
- Estimating

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

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<p>DOMAIN Safety/Shop Basics</p> <p>Core Standard 2 Students integrate safety and basic shop procedures into activities as appropriate to comply with professional and governmental safety standards</p>	<p>ACRTII-2.1 Perform various personal and shop safety practices</p> <p>ACRTII-2.2 Categorize various types of fasteners and their grades</p> <p>ACRTII-2.3 Use appropriate tools and unit conversion techniques to measure vehicle components</p> <p>ACRTII-2.4 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>ACRTII-2.5 Identify specific 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>ACRTII-2.6 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"> • Understands and follow Safety Data Sheets (SDS) • Understands supplier, workplace, and other identification labels • Identifies acute and chronic chemical exposure • Knows the different routes of hazardous chemical entry into the body • Understands the different hazardous chemical categories • Knows where the hazards are located in a collision repair facility • Uses the appropriate personal protective equipment for different tasks in a collision repair facility • Follows safety practices when working with glass, engines, batteries, fuel, and welding equipment • Responds properly to a hazardous materials emergency • Handles, disposes, and stores hazardous waste properly • Identifies common body shop hand and power tools • Chooses the correct tool for the job at hand • Uses each tool correctly and in a safe manner • Maintains the shop tools and equipment 	<ul style="list-style-type: none"> • Lab/shop demonstrations • Safety glass demonstration • Personal safety equipment demonstrations • Electricity and water safety instruction • Grounding equipment safety instruction • Mixing room instruction • OSHA safety videos 	<p>2 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> • S/P2 Certifications • Participation/lab work • Classroom work • Technical Skills Evaluation

Content	Indiana DOE Standards	Knowledge & Skills <i>(based on I-CAR)</i>	Example Activities	Time Frame	Evaluation / Certification
<p>DOMAIN Refinishing</p> <p>Core Standard 3 Student analyzes the processes involved to paint and refinish a vehicle</p>	<p>ACRTII-3.1 Identify metal conditioners as they relate to the different metals</p> <p>ACRTII-3.2 Use primers and sealers according to their uses (per manufacturer’s specifications) as a base for final finishes—this includes the proper mixing and application of both primers and sealers</p> <p>ACRTII-3.3 Distinguish between the different paint finishes including enamel, urethane, and lacquer finishes and their applications</p> <p>ACRTII-3.4 Estimate the proper amount of paint needed for a specific job</p> <p>ACRTII-3.5 Determine the proper type of thinner or reducer needed for a specific job</p> <p>ACRTII-3.6 Show proper spraying techniques using production type equipment for spraying finishes</p> <p>ACRTII-3.7 Demonstrate proper spraying techniques using production type equipment for spraying lacquer and enamel finishes</p> <p>ACRTII-3.8 Demonstrate proper use and application of base coat/clear coat systems</p> <p>ACRTII-3.9 Clean and maintain spray equipment to remove excess materials remaining after spraying</p> <p>ACRTII-3.10 Safely handle, store, and remove toxic body shop materials</p> <p>ACRTII-3.11 Prepare the jam area of a body part for painting</p> <p>ACRTII-3.12 Remove paint defects using proper procedures</p>	<ul style="list-style-type: none"> • Understands the different types of finishes • Utilizes the spray booths and prep decks properly, including the compressed air systems • Adjusts a spray booth as needed • Troubleshoots spray booth problems • Moves a vehicle into a spray booth • Properly uses a spray gun • Cleans and maintains spray guns • Evaluates a spray gun pattern and distribution • Understands spraying techniques for refinishing • Develops a refinishing plan • Identifies paint codes • Cleans the vehicles • Scuffs, sands, and featheredges the refinish areas • Masks the vehicle as needed • Prepares bare and repaired steel for refinishing • Prepares bare and repaired plastic for refinishing • Prepares aluminum for refinishing • Defines mixing ratios • Applies undercoats and sealers • Mixes topcoats • Measures viscosity • Performs jaming and tacking a part • Applies single-stage, BC/CC, and multi-stage finishes • Uses various techniques for refinishing • Blends a single-stage finish and the basecoat in a BC/CC finish • Blends a multi-stage finish • Refinishes plastic parts • Applies corrosion protection materials • Identifies, prevents, and corrects preparation and application issues, such as poor hiding, contamination in the finish, seediness or gritty finish, fisheyes or cratering, blistering, orange peel, runs and sags, mottling or streaking, dry spray, lifting or wrinkling, paint cracking, solvent popping, loss of gloss, shrinking or splitting, poor hardening, sandscratch swelling, contour mapping, tape tracking, overspray, peeling or adhesion failure, corrosion under the finish, paint film oxidation, staining of the finish, or color mismatch • Measures VOC content 	<ul style="list-style-type: none"> • Practice simulations on paint spray simulator equipment • Identify refinishing tools and equipment • Prep surfaces for refinishing • Mix paint and match paint finishes • Spray panels and other parts • Compare different finishes • Practice refinishing work on project and customer vehicles • Lab/shop demonstrations 	<p>30 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> • I-CAR Refinishing Modules 1-5 • Classroom work • Participation/lab work • Technical Skills Evaluation • Dual credit

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<p>DOMAIN Estimating</p> <p>Core Standard 4 Students analyze vehicle paint damage to estimate repair costs in terms of man hours and materials needed</p>	<p>ACRTII-4.1 Calculate costs for various refinishing projects to prepare accurate estimates to customers</p> <p>ACRTII-4.2 Calculate the flat time for refinishing a project</p>	<ul style="list-style-type: none"> • Creates a damage report • Utilizes estimating guides to write a damage report • Gathers customer information for the damage report • Gathers vehicle information for the damage report • Accesses the appropriate service and repair information, technical bulletins, specifications, parts catalogs, and other resources • Performs a customer consultation • Explains the different finish operations and the importance of corrosion protection • Understands other charges that are included in a damage report 	<ul style="list-style-type: none"> • Practice damage reports, including estimating and customer consultation • Lab/shop demonstrations • Lab/shop work 	<p>3 weeks</p> <p>Reinforced throughout the school year</p>	<ul style="list-style-type: none"> • I-CAR Estimating Module 2 • Participation/lab work • Classroom work • Technical Skills Evaluation • Dual credit