

AUTOMOTIVE COLLISION REPAIR I

Automotive Collision Repair Technology I includes classroom and laboratory experiences concerned with all phases of the repair of damaged vehicle bodies and frames, including metal straightening; smoothing areas by filing, grinding, or sanding; concealment of imperfections; painting; and replacement of body components including trim. Students examine the characteristics of body metals including the installation of moldings, ornaments, and fasteners with an emphasis on sheet metal analysis and safety. Course coverage also includes instruction in personal and environmental safety practices as related to OSHA and other agencies that affect individuals working in the ground transportation technology areas. Additional instruction is given on measurement principles and automotive fasteners. Instruction should also emphasize 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.

- DOE Code: 5514
- Recommended Grade Level: Grade 11-12
- Recommended Prerequisites: Introduction to Transportation
- Credits: 2-3 credits per semester, maximum of 6 credits
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- This course is aligned with postsecondary courses for Dual Credit:
 - Ivy Tech
 - AUBR 101- Body Repair Fundamentals
 - Vincennes University
 - AUTO 105- Transportation Fundamentals
 - BODY 100/L-Body Repair I, Body Repair Lab

Dual Credit

This course provides the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

Application of Content and Multiple Hour Offerings

Intensive laboratory applications are a component of this course and may be either school based or work based or a combination of the two. Work-based learning experiences should be in a closely related industry setting. Instructors shall have a standards-based training plan for students participating in work-based learning experiences. When a course is offered for multiple hours per semester, the amount of laboratory application or work-based learning needs to be increased proportionally.

Career and Technical Student Organizations (CTSOs)

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in SkillsUSA, the CTSO for this area.

Content Standards

Domain – Personal/Soft Skills

Core Standard 1 Students apply and adapt appropriate workplace behaviors needed for career success to prepare for further education and training programs.

Standards

- ACRTI-1.1 Identify the appropriate resources for task completion
- ACRTI-1.2 Use effective interpersonal skills to complete group assignments
- ACRTI-1.3 Demonstrate leadership skills
- ACRTI-1.4 Evaluate data for work assignments
- ACRTI-1.5 Apply concepts for effective critical thinking, decision making, and problem-solving techniques
- ACRTI-1.6 Choose appropriate tools and technology for task completion
- ACRTI-1.7 Integrate quality assurance measures and safeguards
- ACRTI-1.8 Incorporate effective listening and speaking skills
- ACRTI-1.9 Perform mathematical calculations correctly
- ACRTI-1.10 Establish a responsible work ethic
- ACRTI-1.11 Establish accepted standards for ethical behavior
- ACRTI-1.12 Develop a personal career goal and develop objectives for achieving the goal
- ACRTI-1.13 Formulate employment and career pathway opportunities related to established career interest(s)
- ACRTI-1.14 Develop a continuing education plan that identifies further education and training options
- ACRTI-1.15 Complete exams leading to certifications recognized by business and industry
- ACRTI-1.16 Develop skills needed to enter the workforce
- ACRTI-1.17 Identify resources that keep workers current in the career field
- ACRTI-1.18 Develop skills and attitudes needed for lifelong learning
- ACRTI-1.19 Devise effective money management strategies

Domain – Safety/Shop Basics

Core Standard 2 Students integrate safety and basic shop procedures into activities as appropriate to comply with professional and governmental safety standards.

Standards

- ACRTI-2.1 Perform personal and shop safety practices
- ACRTI-2.2 Categorize various types of fasteners and their grades
- ACRTI-2.3 Integrate concepts to both standard and metric measurements with various types of measuring devices. The students will use rulers, calipers, dial indicators, and micrometers
- ACRTI-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)
- ACRTI-2.5 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
- ACRTI-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

Domain – Metal Repair/Plastic Repair/Welding

Core Standard 3 Students select appropriate procedures to repair damage to specific materials.

Standards

- ACRTI-3.1 Perform minor damage repair and surface painting preparation procedures
- ACRTI-3.2 Use welding and cutting operations as appropriate
- ACRTI-3.3 Perform outer body panel repairs per industry standards
- ACRTI-3.4 Define and describe different types of metals—this includes the identification of the various types of metals used on automobiles
- ACRTI-3.5 Gauge metals—this includes the proper use of specific measuring tools used to gauge metals

Domain – Glass/Trim/Interior

Core Standard 4 Students select appropriate procedures to repair damage to glass, trim, and vehicle interior.

Standards

- ACRTI-4.1 Demonstrate proper procedures for removing and replacing glass
- ACRTI-4.2 Demonstrate the proper removal, installation, inspection, and replacement (if necessary) procedures of moldings and ornaments
- ACRTI-4.3 Identify repair processes for plastic and adhesives

Domain – Estimating

Core Standard 5 Students analyze vehicle structural damage to estimate repair costs in terms of man hours and materials needed.

Standards

- ACRTI-5.1 Calculate repair costs for various interior, exterior, mechanical, and electrical components to prepare accurate estimates to customers

Domain – Frame/Structural/Welding

Core Standard 6 Students select appropriate procedures to repair vehicle frame and structural damage.

Standards

- ACRTI-6.1 Identify vehicle structural damage
- ACRTI-6.2 Perform welding and cutting operations as appropriate
- ACRTI-6.3 Diagnose and repair vehicle damage and perform structural analysis
- ACRTI-6.4 Perform unibody diagnosis, inspection, measurement, and repairs
- ACRTI-6.5 Use safe working procedures during each stage of diagnosis and repair