

AUTOMOTIVE COLLISION REPAIR TECHNOLOGY II

Automotive Collision Repair Technology II Introduces concepts in auto paint considerations with emphasis on the handling of materials and equipment in modern automotive technologies. 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: 5544
- Recommended Grade Level: Grade 12
- Recommended Prerequisites: Automotive Collision Repair Technology I
- Credits: 2-3 credits per semester, 2 semesters maximum, 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 103- Auto Paint Fundamentals
 - Vincennes University
 - BODY 150/L-Body Repair II and 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

ACRTII-1.1 Identify the appropriate resources for task completion

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

- ACRTII-2.1 Perform various personal and shop safety practices
- ACRTII-2.2 Categorize various types of fasteners and their grades
- ACRTII-2.3 Use appropriate tools and unit conversion techniques to measure vehicle components
- 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)
- 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
- 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

Domain – Refinishing

Core Standard 3 Student analyzes the processes involved to paint and refinish a vehicle.

Standards

- ACRTII-3.1 Identify metal conditioners as they relate to the different metals
- 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

- ACRTII-3.3 Distinguish between the different paint finishes including enamel, urethane, and lacquer finishes and their applications
- ACRTII-3.4 Estimate the proper amount of paint needed for a specific job
- ACRTII-3.5 Determine the proper type of thinner or reducer needed for a specific job
- ACRTII-3.6 Show proper spraying techniques using production type equipment for spraying finishes
- ACRTII-3.7 Demonstrate proper spraying techniques using production type equipment for spraying lacquer and enamel finishes
- ACRTII-3.8 Demonstrate proper use and application of base coat/clear coat systems
- ACRTII-3.9 Clean and maintain spray equipment to remove excess materials remaining after spraying
- ACRTII-3.10 Safely handle, store, and remove toxic body shop materials
- ACRTII-3.11 Prepare the jam area of a body part for painting
- ACRTII-3.12 Remove paint defects using proper procedures

Domain – Estimating

Core Standard 4 Students analyze vehicle paint damage to estimate repair costs in terms of man hours and materials needed.

Standards

- ACRTII-4.1 Calculate costs for various refinishing projects to prepare accurate estimates to customers
- ACRTII-4.2 Calculate the flat time for refinishing a project

Process Standards

Common Core Literacy Standards for Technical Subjects

Reading Standards for Literacy in Technical Subjects 11-12

The standards below begin at grade 11 and define what students should understand and be able to do by the end of grade 12. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations – the former providing broad standards, the latter providing additional specificity.

Key Ideas and Details

- 11-12.RT.1 Cite specific textual evidence to support analysis of technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
- 11-12.RT.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
- 11-12.RT.3 Follow precisely a complex multistep procedure when performing technical tasks; analyze the specific results based on explanations in the text.

Craft and Structure

- 11-12.RT.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific context relevant to *grades 11-12 texts and topics*.
- 11-12.RT.5 Analyze how the text structures information or ideas into categories or hierarchies,

demonstrating understanding of the information or ideas.

- 11-12.RT.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

Integration of Knowledge and Idea

- 11-12.RT.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
- 11-12.RT.8 Evaluate the hypotheses, data, analysis, and conclusions in a technical subject, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
- 11-12.RT.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Range of Reading and Level of Text Complexity

- 11-12.RT.10 By the end of grade 12, read and comprehend technical texts in the grades 11-CCR text complexity band independently and proficiently.

Writing Standards for Literacy in Technical Subjects 11-12

The standards below begin at grade 11 and define what students should understand and be able to do by the end of grade 12. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations – the former providing broad standards, the latter providing additional specificity.

Text Types and Purposes

- 11-12.WT.1 Write arguments focused on *discipline-specific content*.
- 11-12.WT.2 Write informative/explanatory texts, including technical processes.
- 11-12.WT.3 Students will not write narratives in technical subjects. *Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In technical, students must be able to write precise enough descriptions of the step-by-step procedures they use in their technical work that others can replicate them and (possibly) reach the same results.*

Production and Distribution of Writing

- 11-12.WT.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- 11-12.WT.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- 11-12.WT.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Research to Build and Present Knowledge

- 11-12.WT.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject,

demonstrating understanding of the subject under investigation.

11-12.WT.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation

11-12.WT.9 Draw evidence from informational texts to support analysis, reflection, and research.

Range of Writing

11-12.WT.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.