Iowa CTE

Automotive Collision Repair

Students understand the value and necessity of practicing personal and occupational safety and the environmental effects of collision repair and refinishing practices. CRR1	1 **Understand industry environmental conservation practices and their applications.** CRR1.1
	2 **Practice the safe handling and storage of chemicals and hazardous wastes as required by the Occupational Safety and Health Administration, Air Resources Board, Air Quality Management Districts and other regulatory agencies.** CRR1.2
	3 **Understand the generation of waste products and other environmentally destructive substances.** CRR1.3
	4 **Use appropriate materials and repair technologies.** CRR1.4
	5 **Understand the environmental implications of using new and emerging materials, resources and technologies.** CRR1.5
	6 **Understand the safety practices applied when servicing vehicle-body electronics and other vehicle systems.** CRR1.6
Students understand the safe and appropriate use of tools, equipment and work processes. CRR2	1 **Understand how certain tools and equipment are used to perform maintenance and repair operations.** CRR2.1
	2 **Use tools, equipment and machines to safely measure, test, diagnose and analyze components and systems (e.g., electrical and electronic circuits, alternating-and direct-current applications, fluid/hydraulic and air/pneumatic systems).** CRR2.2
Students understand and apply measurement systems and the mathematical functions necessary to perform required fabrication, maintenance and operation procedures. CRR3	1 **Understand industry-standard measurement scales, devices, and systems used to perform design, fabrication, diagnostic, maintenance and repair procedures.** CRR3.1
	2 **Use technical vocabulary, technical reports and manuals, electronic systems, and related technical data resources, as appropriate, to determine repairs and estimates.** CRR3.2
	3 **Understand the different types of welding and heat processes used in repair processes and procedures.** CRR3.3
	4 **Understand the mathematical functions associated with collision repair and refinishing.** CRR3.4

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Students understand scientific principles in relation to chemical, mechanical and physical functions and in relation to industry and manufacturer standards. CRR4	1 **Understand the principles of mechanical, electrical, hydraulic and pneumatic power in relation to collision repair and refinishing.** CRR4.1
	2 **Understand the physical and chemical characteristics of metals, plastics and other materials.** CRR4.2
	3 **Understand the principles of electricity and electronics.** CRR4.3
	4 **Know the basic terms, characteristics and concepts of physical and chemical processes.** CRR4.4
	5 **Understand body and frame construction.** CRR4.5
	6 **Understand the importance of calibration processes, systems and techniques in using various measurement and testing devices.** CRR4.6
Students perform and document repair procedures in accordance with manufacturer recommendations and industry standards. CRR5	1 **Understand the recommended procedures and practices of various manufacturers.** CRR5.1
	2 **Perform and document repair procedures accurately.** CRR5.2
	3 **Use reference books and materials, technical service bulletins and other related documents to determine repairs and repair time.** CRR5.3
Students understand structural and nonstructural analysis and damage repair. CRR6	1 **Understand how to perform frame inspection and repair.** CRR6.1
	2 **Know applications, installations and removal of fixed and moveable glass and hardware.** CRR6.2
	3 **Know how to perform the principles of metal welding and cutting.** CRR6.3
	4 **Understand and know how to prepare and analyze vehicles for repair.** CRR6.4
	5 **Know how to perform outer body panel repairs, replacements and adjustments.** CRR6.5
	6 **Understand and know how to prepare vehicles for metal finishing and body filling.** CRR6.6
Students understand mechanical and electrical components in relation to industry and manufacturer standards. CRR7	1 **Understand how to perform steering and suspension analysis and repairs.** CRR7.1
	2 **Know how to perform electrical repairs.** CRR7.2
	3 **Know how to perform brake analysis and repairs.** CRR7.3
	4 **Know how to perform heating, air conditioning and cooling system repairs.** CRR7.4
	5 **Understand the operation of drivetrain, fuel, intake and exhaust systems.** CRR7.5

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	6 **Understand the operation of restraint and safety systems.** CRR7.6
Students understand the concepts, principles and practices of painting and refinishing. CRR8	1 **Understand how to identify, use and repair plastics and adhesives.** CRR8.1
	2 **Know how to prepare surfaces for painting and finishing.** CRR8.2
	3 **Understand the operation of spray guns and related equipment.** CRR8.3
	4 **Know how to mix, match and apply paint.** CRR8.4
	5 **Understand the causes and cures of paint defects.** CRR8.5
	6 **Understand how to prepare vehicles for final detail.** CRR8.6