INDUSTRY AND TECHNOLOGY
Institutional (ILO), Program (PLO), and Course (SLO) Alignment

Program: **Auto Collision Repair and Painting**	**Number of Courses:** 20	**Date Updated:** 09.18.2014	**Submitted by:** SueEllen Warren, ext. 4519 Renee Newell, ext. 3308

ILOs	**1. Critical Thinking** *Students apply critical, creative and analytical skills to identify and solve problems, analyze information, synthesize and evaluate ideas, and transform existing ideas into new forms.*	**2. Communication** *Students effectively communicate with and respond to varied audiences in written, spoken or signed, and artistic forms.*	**3. Community and Personal Development** *Students are productive and engaged members of society, demonstrating personal responsibility, and community and social awareness through their engagement in campus programs and services.*	**4. Information Literacy** *Students determine an information need and use various media and formats to develop a research strategy and locate, evaluate, document, and use information to accomplish a specific purpose. Students demonstrate an understanding of the legal, social, and ethical aspects related to information use.*

SLO-PLO-ILO ALIGNMENT NOTES:

Mark boxes with an 'X' if: SLO/PLO is a major focus or an important part of the course/program; direct instruction or some direct instruction is provided; students are evaluated multiple times (and possibly in various ways) throughout the course or are evaluated on the concepts once or twice within the course.

DO NOT mark with an 'X' if: SLO/PLO is a minor focus of the course/program and some instruction is given in the area but students are not formally evaluated on the concepts; or if the SLO/PLO is minimally or not at all part of the course/program.

PLOs	**PLO to ILO Alignment** *(Mark with an X)*			
	1	**2**	**3**	**4**
PLO #1 ASE Certification Tests Upon completion of this discipline's course of study, the student will be able pass at least one ASE certification test or practice test in Auto Collision Repair (B2, B3, B4, B5 or B6).	X			
PLO #2 I-CAR Welds Upon completion of this discipline's course of study, the student will be able pass the official I-CAR MIG welding qualification test or ECC imitation. Welds include butt weld, lap weld and plug weld in flat and vertical positions.	X			
PLO #3 Damage Repair Estimate Upon completion of this discipline's course of study, the student will be able to examine a damaged vehicle and create an informal written estimate of the parts, tools, materials and time needed to repair the vehicle.	X			

SLOs	SLO to PLO Alignment (Mark with an X)			COURSE to ILO Alignment (Mark with an X)			
	P1	P2	P3	1	2	3	4
ACRP 1A Introduction to Automotive Collision Repair: SLO #1 MIG Welds Students will be able to set up and use a MIG welder properly and safely to perform three welds (lap, plug, reinforced butt) on automotive gauge steel in 'flat' position.		X					
ACRP 1A Introduction to Automotive Collision Repair: SLO #2 Mix & Spray Primer Students will be able to mix and spray a given quantity of primer using the correct ratio and adjust, operate, and clean an HVLP primer gun.	X			X			
ACRP 1A Introduction to Automotive Collision Repair: SLO #3 Mix, Apply & Shape Plastic Filler Students will be able to mix, apply and shape plastic filler for primer on a repaired automotive panel.	X						
ACRP 1B Collision Repair Equipment and Welding Techniques: SLO #1 I-CAR MIG Welds Students will be able to set up and use a MIG welder properly and safely to perform three welds (lap, plug, reinforced butt) on automotive gauge steel according to I-CAR standards.		X					
ACRP 1B Collision Repair Equipment and Welding Techniques: SLO #2 Panel Misalignment Students will be able to identify panel misalignment due to improper installation, prior damage, and/or improper repair and choose the proper repair steps to correct the misalignment.			X	X			
ACRP 1B Collision Repair Equipment and Welding Techniques: SLO #3 Large Dent Removal Students will be able to use dent removal equipment such as the Maxi welder or stud welder to remove a large dent from an automotive panel with no rear access.	X						
ACRP 1C Major Collision Analysis and Repair: SLO #1 Measuring Vehicle Damage Students will be able to identity, differentiate between, and measure direct and indirect vehicle damage. Students will be able to use proper nomenclature to write an informal estimate of what vehicle parts will need to be repaired and what parts need to be replaced.			X				
ACRP 1C Major Collision Analysis and Repair: SLO #2 Types of Frame Damage Given access to a damaged vehicle, students will be able to recognize one or more of the five types of frame damage and will be able to create a written repair strategy to fix the damage.			X	X			
ACRP 1C Major Collision Analysis and Repair: SLO #3 Core Support Replacement Students will be able to create a repair plan for replacing a damaged unibody vehicle's core support that includes analysis of the damage, an ordered list of parts for removal, tools needed to remove the core support, and location and number of welds needed to install the new support.	X						

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	P1	P2	P3	1	2	3	4
ACRP 1D Automotive Component Systems Analysis and Repair: SLO #1 Plastic Repair Students will be able to locate a plastic part's type code and choose the appropriate repair method, tools, and materials. Students will then be able to apply the method and perform the repair.	X						
ACRP 1D Automotive Component Systems Analysis and Repair: SLO #2 Suspension Components Students will be able to identify damage to suspension components by measuring and visual inspection of a damaged vehicle. Students will be able to use proper nomenclature to write an informal estimate of what vehicle parts will need to be repaired and what parts need to be replaced.			X	X			
ACRP 1D Automotive Component Systems Analysis and Repair: SLO #3 Hybrid & Airbag Safety The student will be able to research, locate, safely disable and enable a hybrid vehicle's high voltage system. The student will also be able to research, safely disable and enable a vehicle's driver airbag.	X						
ACRP 20 Automotive Collision Investigation: SLO #1 Restraint Systems Students will be able to recognize, name, and diagnose damage to multiple types of occupant restraint systems including active restraints (seat belts) and passive restraints (automated seat belts, airbags).	X						
ACRP 20 Automotive Collision Investigation: SLO #2 Damage to Unitized and Full Frame Vehicles Students will be able to recognize, name, and diagnose damage to unitized and full-frame vehicles and some of their major systems (drivetrain, brakes, suspension/steering).			X	X			
ACRP 20 Automotive Collision Investigation: SLO #3 Tire Identification & Construction Students will be able to decode tire information such as wheel size, diameter, width, offset, production date, speed rating, traction rating, and temperature rating. Students will also be able to identify different types of tire construction (radial, bias ply) and identify tires by skid marks observed after an accident.			X				
ACRP 22 Automotive Repair Fraud: SLO #1 Examining Accident Scenes Students will be able to examine an accident scene (in person or via video/digital media) and formulate conclusions as to the details of the accident based on proper detection and investigation procedures and collection of evidence such as accident photography, witness marks and material transfer.			X				
ACRP 22 Automotive Repair Fraud: SLO #2 Staged Accidents Students will be able to analyze both an accident- or fire-damaged vehicle and the accident scene to determine if the accident was staged (fraudulent).			X	X			
ACRP 22 Automotive Repair Fraud: SLO #3 VIN Swapping and Title Issues Students will be able to recognize and locate Vehicle Identification Numbers (VIN) and determine if the VIN plate and/or labels have been altered, cloned, replaced or otherwise tampered with. Students will be able to explain how a vehicle title could be 'washed' and how to identify a washed title.			X				

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	P1	P2	P3	1	2	3	4
ACRP 24 Automotive Collision Analysis: SLO #1 Point of Impact and Secondary Damage Students will be able to analyze an accident-damaged vehicle, and from the collision deformation and damage to crush zones, determine the point of impact and identify secondary damage.			X				
ACRP 24 Automotive Collision Analysis: SLO #2 Speed Determination Students will be able to analyze an accident-damaged vehicle and formulate an impact hypothesis including 4-point and 6-point speed determination.			X	X			
ACRP 24 Automotive Collision Analysis: SLO #3 Accident Causation Factors Students will be able to use an Event Data Recorder (EDR) and vehicle/crash site observation to form a hypothesis explaining the cause of the accident and who is at fault.			X				
ACRP 26 Automotive Accident Reconstruction: SLO #1 Occupant Dynamics Students will be able to predict and evaluate vehicle occupant dynamics in given collision scenarios.			X				
ACRP 26 Automotive Accident Reconstruction: SLO #2 Photography and Computer Modeling Students will be able to properly document vehicle damage using photography and/or computer modeling software for analysis of accident dynamics.			X	X			
ACRP 26 Automotive Accident Reconstruction: SLO #3 Velocity & Force Students will be able to explain and determine a vehicle's Principle Direction of Force (PDOF), force line and Delta-V. Students will also be able to calculate combined velocities of multiple vehicles.			X				
ACRP 2A Basic Automotive Painting - Refinishing: SLO #1 Mixing Primer Students will be able to mix a given quantity of primer using the correct ratio and will be able to adjust, operate, and clean an HVLP primer gun.	X						
ACRP 2A Basic Automotive Painting - Refinishing: SLO #2 Panel Prep and Painting Students will be able to differentiate between full panel repairs, spot repairs, and blend panels and be able to prepare each for refinishing using the correct tools and procedures.	X			X			
ACRP 2A Basic Automotive Painting - Refinishing: SLO #3 Gun Cleaning & VOC Tracking Students will be able to thoroughly tear down a paint spray gun, clean all parts and surfaces using environmentally correct techniques and chemicals, and reassemble. Students will also be able to monitor the type and amount of liquid material used and record the data in the VOC (volatile organic compound) tracking log book.	X						

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ACRP 2B Automotive Refinishing Materials and Equipment: SLO #1 Chemicals and Additives Students will be able to analyze a given repair job and choose the correct chemicals and additives needed for the job based on weather conditions, job scope, job budget, and job deadline.	X						
ACRP 2B Automotive Refinishing Materials and Equipment: SLO #2 Spray Booth Operation Students will be able to set up, operate, and shut down a spray booth according to outside temperature and humidity, and the vehicle job and chemicals being sprayed.	X			X			
ACRP 2B Automotive Refinishing Materials and Equipment: SLO #3 Formula Lookup & Toner Pour Students will be able to retrieve a vehicle's color code and formula information, select the correct quantity for the job, and correctly pour the toners to create the paint.	X						
ACRP 2C Automotive Refinishing Applications: SLO #1 Color Matching and Spot Blends Students will be able to choose the proper color variant for color match and perform a spot blend on a repaired sample panel.	X						
ACRP 2C Automotive Refinishing Applications: SLO #2 Two-Tone Plastic Bumpers Students will be able to prepare and refinish a flexible two-tone plastic bumper using the correct chemicals and production shop procedures.	X			X			
ACRP 2C Automotive Refinishing Applications: SLO #3 Tri-Coat Letdown Panel Students will be able to differentiate between 2-stage and 3-stage color codes, obtain color formula information, pour toners to create basecoat and midcoat paints, and create a 5-step letdown panel to test the paint for color match to a sample chip.	X						
ACRP 4A Beginning Automotive Collision Repair I: SLO #1 Tool Identification & Use Students will be able to properly name tools unique to the collision repair trade and explain how they are used. Students will be able to analyze minor damage and select the correct hand tools to repair the damage.	X						
ACRP 4A Beginning Automotive Collision Repair I: SLO #2 Vehicle Parts & Construction Students will be able to identify and differentiate between unibody and full-frame vehicle designs. Students will be able to identify and properly name major non-structural vehicle parts and panels.			X	X			
ACRP 4A Beginning Automotive Collision Repair I: SLO #3 Mix, Apply & Shape Plastic Filler Students will be able to mix, apply and shape plastic filler for primer on a repaired automotive panel.	X						

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ACRP 4B Beginning Automotive Collision Repair II: SLO #1 I-CAR MIG Welds Students will be able to set up and use a MIG welder properly and safely to perform three welds (lap, plug, reinforced butt) on automotive gauge steel according to I-CAR standards.		X					
ACRP 4B Beginning Automotive Collision Repair II: SLO #2 Large Dent Removal Students will be able to use dent removal equipment such as the Maxi welder or stud welder and Porto Power to remove a large dent from an automotive panel with no rear access.	X			X			
ACRP 4B Beginning Automotive Collision Repair II: SLO #3 Vehicle Disassembly Procedures Students will be able to read a damage estimate and systematically tear down a panel for repair and refinish according to the repairs required by the estimate. Students will also be able to properly store and label the removed parts for later reassembly.	X						
ACRP 4C [Course Name TBA]: SLO #1 Plastic Repair Students will be able to locate a plastic part's type code and choose the appropriate repair method, tools, and materials. Students will then be able to apply the method and perform the repair.	X						
ACRP 4C [Course Name TBA]: SLO #2 Panel Misalignment Students will be able to identify panel misalignment due to improper installation, prior damage, and/or improper repair and choose the proper repair steps to correct the misalignment.			X	X			
ACRP 4C [Course Name TBA]: SLO #3 Structural Parts Students will be able to locate and properly name major unibody vehicle structural parts and assemblies.			X				
ACRP 4D [Course Name TBA]: SLO #1 Porto Power Students will be able to set up and use a Porto Power hydraulic ram and its attachments to remove a large panel dent or correct damage to a structural part.	X						
ACRP 4D [Course Name TBA]: SLO #2 Pull Planning & Geometry Students will be able to analyze damage to a given vehicle, determine the sequence and direction of the impact's damage, and create a diagram and pull plan to correct the damage using the frame rack, Power Post or Pull Dozer.	X			X			
ACRP 4D [Course Name TBA]: SLO #3 Anchoring a Vehicle for Pulling Students will be able to research and locate a given vehicle's anchor points for frame pulling, and choose the correct grade of chains and type of attachment accessories to anchor the vehicle to the floor or frame rack.	X						

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	P1	P2	P3	1	2	3	4
ACRP 5A Beginning Automotive Painting I: SLO #1 VOC Tracking Students will be able to monitor the type and amount of liquid material used for a job and record the data in the VOC (volatile organic compound) tracking log book.	X						
ACRP 5A Beginning Automotive Painting I: SLO #2 Spray Gun Adjustment & Cleaning Students will be able to thoroughly tear down a paint spray gun, clean all parts and surfaces using environmentally correct techniques and chemicals, and reassemble.	X			X			
ACRP 5A Beginning Automotive Painting I: SLO #3 Mix & Spray Primer Students will be able to mix and spray a given quantity of primer using the correct ratio and a locally compliant primer gun.	X						
ACRP 5B Beginning Automotive Painting II: SLO #1 Surface Prep Students will be able to differentiate between and use the correct materials and techniques for preparing steel, aluminum, fiberglass, plastic, e-coat and existing paint for refinishing.	X						
ACRP 5B Beginning Automotive Painting II: SLO #2 Parts Painting Students will be able to clean a vehicle part or parts, mix paint according to the correct ratio and quantity needed, adjust their spray gun, and refinish the parts using locally compliant basecoat/clearcoat paints.	X			X			
ACRP 5B Beginning Automotive Painting II: SLO #3 Corrosion Protection Students will be able to identify surfaces and situations that require the application of corrosion protection on a vehicle. Students will also be able to analyze a surface and determine what kind of corrosion protection would best suit the vehicle.	X						
ACRP 5C [Course Name TBA]: SLO #1 Formula Lookup & Toner Pour Students will be able to retrieve a vehicle's color code and formula information, select the correct quantity for the job, and correctly pour the toners to create the paint.	X						
ACRP 5C [Course Name TBA]: SLO #2 Color Variants and Sprayout Cards Students will be able to locate a vehicle's color code (and plant of manufacture if needed), and select the correct variant from a sample deck. The student will create a sprayout card of their chosen color and evaluate the card for color match.	X			X			
ACRP 5C [Course Name TBA]: SLO #3 Paint Flaws & Corrections Students will be able to identify by name different types of paint flaws and their causes. Students will also be able to identify which flaws can be corrected in the spray booth while wet, which ones must be corrected after they have dried, and the correction tools and technique for each.	X						

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ACRP 5D [Course Name TBA]: SLO #1 Spray Booth Types & Equipment Students will be able to identify by name and differentiate between different kinds of paint spray booths and related equipment.	X						
ACRP 5D [Course Name TBA]: SLO #2 Chemicals & Additives Students will be able to choose the correct speed and type of chemical additives for a variety of different weather conditions, repair job size, and job turnaround time expectations.	X			X			
ACRP 5D [Course Name TBA]: SLO #3 Topcoat Paint Systems Students will be able to compare and contrast the three major types of topcoat paint systems for budget, speed of application, longevity, metallic layout, scratch resistance and ease of repair.	X						
ACRP 6 Automotive Collision Repair Applications: SLO #1 Setting Up and Using MIG Welder Students will be able to set up and use a MIG welder properly and safely to perform three welds (lap, spot, reinforced butt) according to I-CAR standards.		X					
ACRP 6 Automotive Collision Repair Applications: SLO #2 Repair Plan Students will be able to examine a damaged panel and formulate a repair plan that includes choosing the correct tools and abrasive grits for each step of the process from initial metalwork to preparing the panel for primer and refinish.			X	X			
ACRP 6 Automotive Collision Repair Applications: SLO #3 Spray Gun Adjustment & Cleaning Students will be able to thoroughly tear down a paint spray gun, clean all parts and surfaces using environmentally correct techniques and chemicals, and reassemble.	X						