Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 100 SAFETY
Number: 100 **Hours:** 24.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to identify all safety requirements related to the auto body field. Students will be able to identify, and research job opportunities in the auto body field.

Tasks:

PA101 - Follow general shop safety rules.

PA102 - Use of personal safety devices and clothing.

PA103 - Locate and identify fire extinguishers.

PA104 - Locate and operate emergency switches.

PA105 - Explain fire and tornado drill procedures.

PA106 - Demonstrate proper handling of hazardous materials.

PA107 - Follow proper chemical disposal techniques.

PA108 - Operate shop and spray area ventilation systems.

PA109 - Identify and follow rules for care and safe use of hand tools.

PA110 - Identify and demonstrate safe and proper use of power tools and equipment.

PA111 - Identify the proper methods and options for safely moving vehicles in the shop area.

PA112 - Identify information on Safety Data Sheets (SDS).

PA113 - Demonstrate the ability to secure vehicles on jack stands and/or hydraulic lifts.

L113 - Identify opportunities in the auto body field

L114 - Identify program rules and policies

L115 - Identify government agencies regulating the auto collision industry

L116 - Demonstrate the use of proper jacking and lifting points on a full frame vehicle

L117 - Demonstrate the use of proper jacking and lifting on a uni-body vehicle

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

  Supporting Anchor/Standards:
  Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
  Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
  Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure,

etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Career Education and Work Academic Standards
  13.2: Career Acquisition (Getting a Job)

  Supporting Anchor/Standards:
  Standard - 13.2.8.B
  Evaluate resources available in researching job opportunities, such as, but not limited to:

  CareerLinks
  Internet (i.e. O*NET)
  Networking
  Newspapers
  Professional associations
  Resource books (that is Occupational Outlook Handbook, PA Career Guide)

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Complete SP/2 Safety training on-line
List the types of dangers and accidents common to a collision repair facility
Explain how to avoid shop accidents

Outline the control measures needed when working with hazardous substances
Summarize hand and power tool safety
List the types of dangers and accidents common to a collision repair facility
Explain how to avoid shop accidents
Outline the control measures needed when working with hazardous substances
Summarize hand and power tool safety
Describe safety practices designed to avoid fire and explosions
Identify and explain general purpose hand tools
Identify and explain the use for the most important collision repair hand tools
Compare the advantages and disadvantages of different tools
Properly select the right tool for the job
Maintain and store tools properly
Identify power tools found in a collision repair facility
Explain the purpose of each type of power tool
Summarize how to safely use tools
Identify the typical types of equipment used in collision repair
Describe how to use collision repair equipment
Select the right power tool or piece of equipment for the job
Explain low emissions spray equipment and regulations
Explain the operation of spray booths and drying rooms
Identify the various types of spray guns and explain how each type operates
Describe the recommended maintenance program for a spray booth
Operate and maintain a spray gun
Identify and take necessary precautions with hazardous operations and materials according to federal, state, and local regulations.HP-I
REF01 Modules 4
REF03 Modules 2, 4
WKR01 Modules 3
Identify safety and personal health hazards according to OSHA guidelines and "Right to Know”.
HP-I WKR01 Modules 1
Inspect spray environment to ensure compliance with federal, state, and local regulations, and for safety and cleanliness hazards.
HP-I REF01 Modules 3
WKR01 Modules 5
Select and use the NIOSH approved personal sanding respirator.
Inspect condition and ensure fit and operation.
Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulations.
HP-I WKR01 Modules 4
Select and use the NIOSH approved (Fresh Air Make-up System) personal painting/refinishing respirator system.
Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation.
HP-I REF01 Modules 2
WKR01 Modules 4
Select and use the proper personal safety equipment for surface preparation, spray gun and related equipment operation, paint mixing, matching and application, paint defects, and detailing (gloves, suits, hoods, eye, and ear protection, etc.).
HP-I REF02 Modules 2
REF03 Modules 2, 4
WKR01 Modules 4

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration

Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment

Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Textbook: Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning.
Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL.
Automotive Body Repair News (ABRN) magazine Hand tools Grinders Finish Sanders DA Sander Cut Off Wheel Air Saw Stinger English Wheel Brake Press Spray Booth Mig Welder Torch Frame Machine Lift Jack Promotional materials from post-secondary institutions Assorted tool catalogs Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety TrainingHyperlinks: www.cengage.com

www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 200 VEHICLE DESIGN AND CONSTRUCTION
Number: 200 **Hours:** 50.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to list, describe, and identify the various types or parts of a unibody vehicle.

Tasks:

PA201 - Identify the differences between various vehicle construction types.

PA202 - Identify and describe structural and nonstructural panels of a unibody vehicle.

PA203 - Determine the various materials used in vehicle construction.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12

Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12

Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12

Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Define the most important parts of a vehicle
Explain body design and frame variations
Compare unibody and body-over-frame construction
Identify the major structural parts, sections, and assemblies of body-over-frame vehicles
Identify the major structural parts, sections and assemblies of unibody vehicles.
Determine the extent of the direct and indirect damage and the direction of impact; document the methods and sequence of repair. HP-I
DAM02 Modules 1, 3
FCR01 Modules 2
SSS01 Modules 1
Identify weldable and non-weldable materials used in collision repair. HP-I FCR01 Modules 1
Determine the extent of direct and indirect damage and direction of impact; develop and document a repair plan HP-I
DAM02 Modules 1, 3
FCR01 Modules 2
STS01 Modules 2

Remediation:
Re-teach major concepts
Review with teacher assistance

Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
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Provide Frequent Feedback
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Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
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Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out

Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
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Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J.E.(2016).Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Hand tools Frame Machine Lift Jack Assorted Vehicles Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resources Promotional materials from post-secondary institutions Technology integration I-CAR advanced delivery curriculum Internet resources Assorted tool catalogs Computer Fire extinguisher Respirator Eye Wash StationHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 300 PANEL REPLACEMENT AND ALIGNMENT
Number: 300 **Hours:** 60.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to prep vehicle for a non-structural repair following the estimated repair sequence and using the appropriate tools and equipment.

Tasks:

PA301 - Identify the principles of full or partial panel replacement (bonded, bolted, welded, or riveted).

PA302 - Remove, reinstall, and align bolt on panels.

PA303 - Remove and reinstall wheel/tire assembly.

PA304 - Aim headlights using mechanical aiming equipment.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Describe different types of metals used in vehicle construction
Summarize the deformation effects of impacts on steel
Use a hammer and dolly to straighten
Explain how to straighten with spoons
List the steps for shrinking metal
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Explain how damage repair estimates are determined
Properly select the right tool for the job
Select the right power tool or piece of equipment for the job
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Mask a vehicle properly
Explain how damage repair estimates are determined
Identify and explain the most common abbreviations used in collision estimating guides
Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document repair plan. HP-I
DAM01 Modules 1, 2
EXT01 Modules 1
Inspect, remove, store, and replace exterior trim and moldings. HP-I
DAM04 Modules 4
TRM01 Modules 3, 6, 7
Inspect, remove, store, and replace interior trim and components. HP-I
DAM04 Modules 1
TRM01 Modules 5
Inspect, remove, store, and replace non-structural body panels and components that may interfere with or be damaged during repair. HP-I
DAM02 Modules 2, 3
DAM04 Modules 3
EXT01 Modules 1, 2, 3, 4, 5

Remediation:

Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
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Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
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Regular Notebook Check
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Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
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All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
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Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

James E. Duffy , Auto Body Repair Technology , 6th Edition , Cengage(2016)
Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL.
Automotive Body Repair News (ABRN) magazine Volume 47-49. Protective Tape Welding Blankets Hand tools Grinders Finish Sanders DA Sander Cut Off Wheel Air Saw Stinger English Wheel Brake Press Spray Booth Mig Welder Torch Frame Machine Lift Jack Assorted tool catalogs Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.cengage.com

www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 400 TRIM AND HARDWARE
Number: 400 **Hours:** 90.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to remove, install, and align body panels.

Tasks:

PA402 - Determine types of fasteners.

PA403 - Remove and replace adhesive-held molding and trim.

PA404 - Remove and install seats.

PA406 - Remove and install interior parts and hardware.

PA407 - Remove and install exterior parts and hardware.

PA408 - Remove and install exterior trim, moldings, and emblems.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
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Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
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Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

  Supporting Anchor/Standards:

  TEXT TYPES AND PURPOSE GRADES 9-10-11-12
  Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
  Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
  PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
  Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
  Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
  Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
  RESEARCH GRADES 9-10-11-12
  Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
  Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
  Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
  RANGE OF WRITING GRADES 9-10-11-12
  Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Remove and install fenders
List the various methods for adjusting mechanically fastened panels
Perform hood-to-hinge, hood height, and hood latch adjustments
Remove, install, and adjust deck lids
Remove, install, and adjust bumpers
Replace grilles and other bolt-on body parts
Identify the various fasteners used in vehicle construction
Remove and install bolts and nuts properly
Explain when specific fasteners are used in vehicle construction
Explain bolt and nut torque values
Identify the various fasteners used in vehicle construction
Remove and install bolts and nuts properly
Explain when specific fasteners are used in vehicle construction
Explain bolt and nut torque values

Inspect, remove, and replace bolted, bonded, and welded steel panel or panel assemblies. HP-I
ADH01 Modules 1
DAM02 Modules 1, 2, 3
EXT01 Modules 1, 2, 3, 4
EXT02 Modules 1, 2, 3, 4, 5
Inspect, remove, replace, and align hood, hood hinges, and hood latch. HP-I DAM02 Modules 3
EXT01 Modules 2
Inspect, remove, replace, and align deck lid, lid hinges, and lid latch. HP-I DAM04 Modules 3
EXT01 Modules 4
Inspect, remove, replace, and align doors, tailgates, hatches, lift gates, latches, hinges, and related hardware. HP-I
DAM04 Modules 2, 3
EXT01 Modules 3, 4
EXT02 Modules 2
Inspect, remove, replace, and align bumper bars, covers, reinforcement, guards, isolators, and mounting hardware. HP-I
DAM02 Modules 2
EXT01 Modules 2
EXT02 Modules 5
Inspect, remove, replace, and align front fenders, headers, and other panels. HP-I
DAM02 Modules 3
EXT01 Modules 2
EXT02 Modules 5
Replace door skins according to manufacturer’s procedures. HP-G
ADH01 Modules 1
EXT02 Modules 2
Perform panel bonding according to manufacturer’s specifications. HP-G
ADH01 Modules 1

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)

Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J.E.(2016).Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Measuring tapes Rulers Tram gauge Brake parts Suspension parts Air Chucks Air Pressure Gauge Fasteners Rivets & Rivet gun Chains & Body clamps Frame machine Frame specification books Brake press Multimeter's AVR Battery Testers Battery Chargers Extension cords Blow Guns Compressors Air hoses & regulators Extractors Tap & die Hammers Dollies Pry bars & punches Body picks Stinger Heat Gun Lift Equipment Jack stands Drop Lights Wheel alignment machine Pliers Wrenches Tin snips Torque Wrenches Screw Drivers Scrapers Vise grips Welding clamps Caulking gun Air Ratchets Ratchets Sockets Impact gun DA sanders Finish sander Cut off wheel Drill & bits Air saw Grinders Face shield Metal files Buffer & Spur Sanding blocks Squeegee Vacuum Hoses Vacuum MIG welders Plastic welder Welding Helmets Welding blankets Welding gloves Surge protector OXY-Acetylene Cutters Goggles Spray guns Spray booth Paint mixing machine Paint shaker Spray gun cleaner Paint waste recycler Mixing scale Paint supplies Fire proof cabinet Respirators Detailing suppliesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 500 Metal Finishing
Number: 500 **Hours:** 50.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to use straightening tools to shrink and straighten metal.

Tasks:

PA501 - Select proper metal straightening tools.

PA502 - Evaluate stretched metal for repair.

PA503 - Demonstrate weld-on nail gun to repair sheet metal.

PA504 - Repair metal to meet industry standards.

PA505 - Explain the characteristics of aluminum repair and tools required.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

  Supporting Anchor/Standards:

  KEY IDEAS/DETAILS GRADES 9-10-11-12
  Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
  Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
  Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
  CRAFT & STRUCTURE GRADES 9-10-11-12
  Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
  Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
  Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
  Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
  Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
  Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
  Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
  Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
  Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
  RANGE OF READING GRADES 9-10-11-12
  Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Standard - 3.2.9-12.C
Students who demonstrate understanding can construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Describe different types of metals used in vehicle construction
Summarize the deformation effects of impacts on steel
Use a hammer and dolly to straighten
Explain how to straighten with spoons
List the steps for shrinking metal
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Explain how damage repair estimates are determined
Properly select the right tool for the job
Select the right power tool or piece of equipment for the job
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Mask a vehicle properly
Explain how damage repair estimates are determined
Identify and explain the most common abbreviations used in collision estimating guides
Heat shrink stretched panel areas to proper contour acccording to manufacturer’s specifications. HP-G STS01 Modules 2
Cold shrink stretched panel areas to proper contour. HP-G STS01 Modules 2

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J.E.(2016).Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Hand tools Grinders Finish Sanders DA Sander Cut Off Wheel Air Saw Stinger English Wheel Brake Press Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 600 BODY FILLERS
Number: 600 **Hours:** 40.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to properly use body filler and tools.

Tasks:

PA601 - Select correct body filler and tools.

PA602 - Prepare surface for body filler.

PA603 - Mix and apply body filler.

PA604 - Sand body fillers to correct contour.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

  Supporting Anchor/Standards:

  TEXT TYPES AND PURPOSE GRADES 9-10-11-12
  Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
  Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
  PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
  Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
  Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
  Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
  RESEARCH GRADES 9-10-11-12
  Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
  Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
  Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
  RANGE OF WRITING GRADES 9-10-11-12
  Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Science, Technology & Engineering, and Environmental Literacy & Sustainability Standards
  3.5.9-12.1 Strand: Nature and Characteristics of Technology and Engineering

  Supporting Anchor/Standards:

  3.5.9-12.OO Use project management tools, strategies, and processes in planning, organizing, and controlling work.

  3.5.9-12.QQ Implement quality control as a planned process to ensure that a product, service, or system meets established criteria.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Describe different types of metals used in vehicle construction
Summarize the deformation effects of impacts on steel
Use a hammer and dolly to straighten

Explain how to straighten with spoons
List the steps for shrinking metal
Explain how damage repair estimates are determined
Properly select the right tool for the job
Select the right power tool or piece of equipment for the job
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Mask a vehicle properly
Explain how damage repair estimates are determined
Identify and explain the most common abbreviations used in collision estimating guides
Remove paint from the damaged area of a body panel. HP-I
STS01 Modules 2
Locate and reduce surface irregularities on a damaged body panel. HP-I
DAM02 Modules 3
FCR01 Modules 2
STS01 Modules 1, 2
Demonstrate hammer and dolly techniques. HP-I
STS01 Modules 2
Heat shrink stretched panel areas to proper contour acccording to manufacturer’s specifications. HP-G
STS01 Modules 2
Cold shrink stretched panel areas to proper contour. HP-G
STS01 Modules 2
Mix body filler. HP-I
STS01 Modules 2
Apply body filler; shape during curing. HP-I
STS01 Modules 2
Rough sand cured body filler to contour; finish sand. HP-I
STS01 Modules

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
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Directions/Comprehension Check (frequent checks for understanding)
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Drill and Practice (Repetition of Material)

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Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
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Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
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Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
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Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
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Safety:

Student must:
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Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

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Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 700 GLASS AND HARDWARE
Number: 700 **Hours:** 20.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to remove and replace a door regulator and glass.

Tasks:

PA701 - Remove and reinstall a door window regulator.

PA702 - Remove and reinstall moveable door glass.

PA703 - Describe the removal and replacement of stationary glass.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.
Standard - 13.1.9-12.D
Describe employment outlook, organized by in-demand occupations, clusters, pathways, or other methods.

Standard - 13.2.9-12.A
Identify solutions to existing conditions or problems using critical thinking skills.
Standard - 13.2.9-12.D
Use job-specific technologies to accomplish work responsibilities in a productive manner.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work

Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Remove and Replace and adjust a door regulator
Inspect, adjust, repair, or replace window regulators, run channels, glass, power mechanisms, and related controls. HP-G
DAM04 Modules 2
GLA01 Modules 2
PWR01 Modules 5

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects

Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Protective Tape Welding Blankets Hand tools Assorted tool catalogs Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 800 STRUCTURAL COMPONENT REPAIR AND DAMAGE ANALYSIS
Number: 800 **Hours:** 60.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to do structural repair - damage analysis.

Tasks:

PA801 - Classify the various types structural damage a vehicle can sustain.

PA802 - Interpret body dimension specifications.

PA803 - Use a tram gauge to diagnose vehicle length and width damage and X measurements of body or frame.

PA804 - Diagnose vehicle height with datum line gauges.

PA805 - Identify various measuring systems.

PA806 - Identify repair methods for vehicle with diamond damage, twist, sag side swag or mash.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
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Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
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Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

ALGEBRA
Standard 2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.
GEOMETRY
Standard 2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles.
Standard 2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.
Standard 2.3.HS.A.13 Analyze relationships between two dimensional and three dimensional objects.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
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Complete vocabulary activities
Participate in group activities as directed
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Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Diagnose and measure structural damage using tram and self-centering gauges according to industry
Explain how impact forces are transmitted through frame and unibody construction vehicles
Describe how to visually determine the extent of impact damage
List the various types and variations of body measuring tools
Analyze damage by measuring body dimensions
Given a damaged vehicle and a body specification manual, locate and measure key points using a tape measure, tram bar, and self-centering gauges
Attach vehicle to anchoring devices. HP-I
MEA01 Modules 6
SSS01 Modules 2
Analyze, straighten, and align sag damage. HP-G
MEA01 Modules 4
SSS01 Modules 5
Analyze, straighten, and align sidesway damage. HP-G
MEA01 Modules 4
SSS01 Modules 5
Analyze, straighten, and align twist damage. HP-G
MEA01 Modules 4
SSS01 Modules 5
Restore corrosion protection to repaired or replaced frame areas. HP-I
CPS01 Modules 3
Identify heat limitations in structural components in accordance with vehicle manufacturer’s specifications/procedures. HP-G
FCR01 Modules 1
SSS01 Modules 4
Diagnose and measure structural damage using a universal measuring system (mechanical, electrical, laser). HP-G
DAM02 Modules 1
MEA01 Modules 2
Diagnose and measure structural vehicles using a dedicated (fixture) measuring system. HP-G
MEA01 Modules 2
Determine the extent of the direct and indirect damage and the direction of impact; document the methods and sequence of repair. HP-I
DAM02 Modules 1, 3
FCR01 Modules 2
SSS01 Modules 1

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration

Study guides
Computer assisted instruction

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All Vocabulary to be Defined Before Testing
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Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment

Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
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Resources/Equipment:

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Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1000 CORROSION PROTECTION
Number: 1000 **Hours:** 20.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to identify types of corrosion and methods of corrosion protections and protection of interior, exterior, and accessories surfaces.

Tasks:

PA1001 - Identify corrosion causes and OEM corrosion protection.

PA1002 - Apply repair methods for corrosion protection.

PA1004 - Demonstrate the application of seam sealers.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
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CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
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Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
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Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.
Standard - 3.2.9-12.F
Students who demonstrate understanding can refine the design of a chemical system by specifying a

change in conditions that would produce increased amounts of products at equilibrium.
Standard - 3.2.9-12.E
Students who demonstrate understanding can apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
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Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Properly select the right tool for the job
Select the right power tool or piece of equipment for the job
Mask a vehicle properly
Identify the principal methods of rust protection
Choose the correct antirust materials and equipment

Remediation:

Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
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All Vocabulary to be Defined Before Testing
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Encouragement to Participate in Positive Leadership Roles
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Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1100 WELDING AND CUTTING
Number: 1100 **Hours:** 40.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to set up welder and complete several types of welds, while demonstrating personal and vehicle protections.

Tasks:

PA1101 - Identify different methods of attaching components (MIG welding, squeeze type resistance spot welding (STRSW), structural adhesive, silicon bronze, etc.)

PA1102 - Demonstrate personal safety practices.

PA1103 - Set up and tune the MIG welder.

PA1104 - Complete a butt joint with backing in various welding positions.

PA1105 - Comptete an overlap weld in various positions.

PA1106 - Complete a plug weld in various positions.

PA1107 - Define protection of adjacent panels, glass, vehicle interior, etc. from welding and cutting operations.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

  Supporting Anchor/Standards:
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  Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
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  Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
  Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in

diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Properly select the right tool for the job
Describe when to use and when NOT to use certain welding processes for collision repair
Name the parts of a MIG welder
Summarize how to set up a MIG welder
Describe the differences between MIG electrode wires
Explain the variables for making a quality MIG weld
Describe the various types of MIG welds and joints
Explain the resistance spot welding process

Explain the differences in welding aluminum compared to steel
Describe plasma arc cutting
Identify weldable and non-weldable materials used in collision repair. HP-I
FCR01 Modules 1
Weld and cut high-strength steel and other steels using manufacturer’s specifications/procedures. HP-I
WCS01 Modules 1, 2, 3, 4
Weld and cut aluminum using manufacturer’s specifications/procedures. HP-G
WCA01 Modules 1, 2
Determine the correct GMAW (MIG) welder type, electrode, wire type, diameter, and gas to be used in a specific welding situation. HP-I
WCS01 Modules 1
Set up and adjust the GMAW (MIG) welder to "tune" for proper electrode tickout, voltage, polarity, flow rate, and wire-feed speed required for the material being welded. HP-I
WCS01 Modules 1
Store, handle, and install high-pressure gas cylinders. HP-I
WCS01 Modules 1
Determine work clamp (ground) location and attach. HP-I
WCS01 Modules 1
Use the proper angle of the gun to the joint and the direction of the gun travel for the type of weld being made in the flat, horizontal, vertical, and overhead positions. HP-I
WCS01 Modules 1
Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations. HP-I
WCS01 Modules 1
Protect computers and other electronic control modules during welding procedures according to manufacturer’s specifications. HP-I
WCS01 Modules 1
Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, and clamp as required. HP-I
WCS01 Modules 1
Determine the joint type (butt weld with backing, lap, etc.) for weld being made according to manufacturer’s/industry specifications. HP-I
SPS01 Modules 1
SPS02 Modules 1
SPS03 Modules 2, 3
Determine the type of weld (continuous, butt weld with backing, plug, etc.) for each specific welding operation according to manufacturer’s/industry specifications. HP-I
SPS01 Modules 1
SPS02 Modules 1
SPS03 Modules 2, 3
Perform the following welds: continuous, stitch, tack, plug, butt weld with backing, and lap joints. HP-I
WCS01 Modules 2, 3, 4
Perform visual and destructive tests on each weld type. HP-I
WCS01 Modules 2, 3, 4
Identify the causes of various welding defects; make necessary adjustments. HP-I
WCS01 Modules 1
Identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments. HP-I
WCS01 Modules 1
Identify cutting process for different materials and locations in accordance with manufacturer’s procedures; perform cutting operation. HP-G
WCS05 Modules 4
Identify different methods of attaching structural components (squeeze type resistance spot welding (STRSW), riveting, structural adhesive, silicone bronze, etc.) HP-G
SPA01 Modules 2
SPA02 Modules 1, 2
SPS03 Modules 4
WCS04 Modules 1, 2, 3
Describe different types of metals used in vehicle construction
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group

Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
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Use of Computer (Access to)
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Have Student Repeat Directions
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Provide Frequent Feedback
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Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
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Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

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Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
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Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Protective Tape Welding Blankets Hand tools Mig Welder Welding Helmut Welding Gloves Sheet Metal Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1200 CUTTING PROCESSES
Number: 1200 **Hours:** 20.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to set up and demonstrate proper sheet metal cutting processes.

Tasks:

PA1201 - Identify cutting processes.

PA1202 - Demonstrate sheet metal cutting processes.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
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Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

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Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
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Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

  Supporting Anchor/Standards:

  NUMBERS AND OPERATIONS
  Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
  Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
  Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
  Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

  ALGEBRA
  Standard 2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.

  GEOMETRY
  Standard 2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles.
  Standard 2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.
  Standard 2.3.HS.A.13 Analyze relationships between two dimensional and three dimensional objects.

Instructional Activities:

Knowledge:
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Complete assigned worksheets
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Participate in class discussions

Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects
Describe plasma arc cutting

Skill:
Describe plasma arc cutting
Properly select the right tool for the job
Select the right power tool or piece of equipment for the job
Weld and cut high-strength steel and other steels using manufacturer’s specifications/procedures. HP-I
WCS01 Modules 1, 2, 3, 4
Weld and cut aluminum using manufacturer’s specifications/procedures. HP-G
WCA01 Modules 1, 2
Determine work clamp (ground) location and attach. HP-I
WCS01 Modules 1
WCS05 Modules 4

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
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Regular Notebook Check

Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
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Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
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Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
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Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Plazma Cutter Welding Gloves Protective Eye Shield Protective Tape Welding Blankets Hand tools Grinders Torch Sheet Metal Fire extinguisher Respirator Eye

Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1300 REFINISHING AND EQUIPMENT
Number: 1300 **Hours:** 60.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to explain various regulations as well as locate hazardous warnings and inspect personal safety equipment.

Tasks:

PA1301 - Explain various environmental regulations.

PA1302 - Locate hazardous warning information.

PA1303 - Select and inspect personal protection equipment (PPE).

PA1304 - Demonstrate safe painting practices.

PA1305 - Identify personal health and safety hazards.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

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Demonstrate safe use of tools
Complete assigned individual projects
List the types of dangers and accidents common to a collision repair facility
Explain how to avoid shop accidents
Outline the control measures needed when working with hazardous substances
Summarize hand and power tool safety

Skill:
Describe safety practices designed to avoid fire and explosions
Explain the benefits of ASE certification

Summarize the purpose of I-CAR
Know the sources of professional training and certification available to collision repair facility personnel
Properly select the right tool for the job
Select the right power tool or piece of equipment for the job
Identify and take necessary precautions with hazardous operations and materials according to federal,state, and local regulations. HP-I
REF01 Modules 4
REF03 Modules 2, 4
WKR01 Modules 3
Identify safety and personal health hazards according to OSHA guidelines and "Right to Know". HP-I
WKR01 Modules 1
Inspect spray environment to ensure compliance with federal, state, and local regulations, and for safety and cleanliness hazards. HP-I
REF01 Modules 3
WKR01 Modules 5
Select and use the NIOSH approved personal sanding respirator. Inspect condition and ensure fit and operation. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulations. HP-I
WKR01 Modules 4
Select and use the NIOSH approved (Fresh Air Make-up System) personal painting/refinishing respirator system. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation. HP-I
REF01 Modules 2
WKR01 Modules 4
Select and use the proper personal safety equipment for surface preparation, spray gun and related equipment operation, paint mixing, matching and application, paint defects, and detailing (gloves, suits, hoods, eye, and ear protection, etc.). HP-I
REF02 Modules 2
REF03 Modules 2, 4
WKR01 Modules 4

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SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Respirator Gloves Paint Suit Fresh Air hood Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1400 Automotive Finishes
Number: 1400 **Hours:** 10.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to describe and identify paint defects while demonstrating use of refinishing equipment.

Tasks:

PA1401 - Describe the difference between paint systems (water borne, solvent, multi-stage).

PA1402 - Describe causes and cures of paint defects.

PA1403 - Identify various undercoats.

PA1404 - Identify various topcoats (single stage, basecoat/clearcoat, tricoat, quadcoat).

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

  Supporting Anchor/Standards:

  KEY IDEAS/DETAILS GRADES 9-10-11-12
  Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
  Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
  Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
  CRAFT & STRUCTURE GRADES 9-10-11-12
  Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
  Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
  Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
  Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
  Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
  Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
  Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
  Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
  Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
  RANGE OF READING GRADES 9-10-11-12
  Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

  Supporting Anchor/Standards:

  TEXT TYPES AND PURPOSE GRADES 9-10-11-12
  Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
  Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
  PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
  Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
  Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
  Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
  RESEARCH GRADES 9-10-11-12
  Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
  Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
  Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
  RANGE OF WRITING GRADES 9-10-11-12
  Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

  Supporting Anchor/Standards:

  NUMBERS AND OPERATIONS
  Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
  Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
  Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
  Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers
  ALGEBRA
  Standard 2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.
  GEOMETRY
  Standard 2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles.
  Standard 2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.
  Standard 2.3.HS.A.13 Analyze relationships between two dimensional and three dimensional objects.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed

Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Explain the difference between spot refinishing, panel refinishing and overall refinishing
Properly use a spray gun
Summarize the different kinds of spray coats
Outline general color coat/clear coat application procedures
Explain the key points to keep in mind when applying multistage finishes
List general rules for painting/refinishing vehicles
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Properly select the right tool for the job
Select the right power tool or piece of equipment for the job
Explain how damage repair estimates are determined
Inspect, remove, store, and replace exterior trim and components necessary for proper surface preparation. HP-I
DAM04 Modules 4
TRM01 Modules 3, 6, 7
Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants. HP-I
REF02 Modules 1
REF04 Modules 1
Inspect and identify substrate, type of finish, and surface condition; develop and document a plan for refinishing using a total product system. HP-I
DAM01 Modules 3
REF02 Modules 1
Remove paint finish in accordance with manufacturer’s recommendations.
HP-I
REF02 Modules 2
Dry or wet sand areas to be refinished. HP-I
REF02 Modules 4
REF03 Modules 2
Featheredge damaged areas to be refinished. HP-I
REF02 Modules 4
Apply suitable metal treatment or primer in accordance with total product systems. HP-I
CPS01 Modules 3
REF02 Modules 4
Mask and protect other areas that will not be refinished. HP-I
REF02 Modules 2
Mix primer, primer-surface, or primer-sealer. HP-I
REF01 Modules 5
REF02 Modules 4
REF03 Modules 4
Apply primer onto surface of repaired area. HP-I REF02 Modules 4
Apply two-component finishing filler to minor surface imperfections. HP-I
STS01 Modules 2
Dry or wet sand area to which primer-surface has been applied. HP-I
REF02 Modules 4
Dry sand area to which two-component finishing filler has been applied. HP-I
STS01 Modules 2
Remove dust from area to be refinished, including cracks or moldings of adjacent areas. HP-I
REF02 Modules 4
REF03 Modules 3, 4
Clean area to be refinished using a final cleaning solution. HP-I
REF03 Modules 3
Remove, with a tack rag, any dust or lint particles from the area to be refinished. HP-I
REF02 Modules 3, 4
REF03 Modules 4

Apply suitable sealer to the area being refinished when sealing is needed or desirable. HP-I
REF03 Modules 4
Scuff sand to remove nibs or imperfections from a sealer. HP-I
Apply stone chip resistant coating. HP-I
CPS01 Modules 4
REF03 Modules 3
Restore corrosion-resistant coatings, caulking, and seam sealers to repaired areas. HP-I
CPS01 Modules 3, 4
REF02 Modules 5
Prepare adjacent panels for blending. HP-I
REF02 Modules 4, 5
Prepare plastic panels for refinishing. HP-I
REF02 Modules

Remediation:

Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom

Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning.. Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental. Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental. Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago: IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. SIMS Virtual Paint Sprayer Hand tools Spray Booth Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1500 SURFACE PREPARATION
Number: 1500 **Hours:** 25.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to repair a surface for refinishing.

Tasks:

PA1501 - Demonstrate proper steps to pre-wash entire vehicle.

PA1502 - Use wax and grease remover.

PA1503 - Demonstrate proper use of sanding and featheredging techniques.

PA1504 - Wet sand and featheredge.

PA1506 - Locate and btain the vehicle paint code.

PA1507 - Apply undercoats.

PA1508 - Prepare panels for blending.

PA1510 - Identify masking materials.

PA1511 - Perform masking.

PA1512 - Select the appropriate abrasive.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
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Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
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Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

  Supporting Anchor/Standards:

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  Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
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  Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
  Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
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Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

  Supporting Anchor/Standards:

  NUMBERS AND OPERATIONS
  Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
  Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
  Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
  Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

  ALGEBRA

Standard 2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.
GEOMETRY
Standard 2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles.
Standard 2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.
Standard 2.3.HS.A.13 Analyze relationships between two dimensional and three dimensional objects.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Explain the difference between spot refinishing, panel refinishing and overall refinishing
Properly use a spray gun
Summarize the different kinds of spray coats
Outline general colorcoat/clearcoat application procedures
Explain the key points to keep in mind when applying multistage finishes
List general rules for painting/refinishing vehicles
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Select the right power tool or piece of equipment for the job
Inspect, remove, store, and replace exterior trim and components necessary for proper surface preparation. HP-I
TRM01 Modules 3, 6, 7
Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants. HP-I
REF02 Modules 1
REF04 Modules 1
Inspect and identify substrate, type of finish, and surface condition; develop and document a plan for refinishing using a total product system. HP-I
DAM01 Modules 3
REF02 Modules 1
Remove paint finish in accordance with manufacturer’s recommendations. HP-I
REF02 Modules 2
Dry or wet sand areas to be refinished. HP-I
REF02 Modules 4
REF03 Modules 2
Featheredge damaged areas to be refinished. HP-I
REF02 Modules 4
Apply suitable metal treatment or primer in accordance with total product systems. HP-I
CPS01 Modules 3
REF02 Modules 4
Mask and protect other areas that will not be refinished. HP-I
REF02 Modules 2
Mix primer, primer-surfacer, or primer-sealer. HP-I
REF01 Modules 5
REF02 Modules 4
REF03 Modules 4

Apply primer onto surface of repaired area. HP-I REF02 Modules 4
Apply two-component finishing filler to minor surface imperfections. HP-I
STS01 Modules 2
Dry or wet sand area to which primer-surface has been applied. HP-I
REF02 Modules 4
Dry sand area to which two-component finishing filler has been applied. HP-I
STS01 Modules 2
Remove dust from area to be refinished, including cracks or moldings of adjacent areas. HP-I
REF02 Modules 4
REF03 Modules 3, 4
Clean area to be refinished using a final cleaning solution. HP-I
REF03 Modules 3
Remove, with a tack rag, any dust or lint particles from the area to be refinished. HP-I
REF02 Modules 3, 4
REF03 Modules 4
Apply suitable sealer to the area being refinished when sealing is needed or desirable. HP-I
REF03 Modules 4
Scuff sand to remove nibs or imperfections from a sealer. HP-I
Apply stone chip resistant coating. HP-I
CPS01 Modules 4
REF03 Modules 3
Restore corrosion-resistant coatings, caulking, and seam sealers to repaired areas. HP-I
CPS01 Modules 3, 4
REF02 Modules 5
Prepare adjacent panels for blending. HP-I
REF02 Modules 4, 5
Prepare plastic panels for refinishing. HP-I
REF02 Modules

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Hand tools Spray Booth Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks:

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1600 REFINISHING EQUIPMENT AND PAINT AREA
Number: 1600 **Hours:** 25.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to properly prepare and use the painting environment and mixing area.

Tasks:

PA1601 - Operate the spray booth.

PA1602 - Maintain the paint mixing area.

PA1603 - Set up, test and adjust spray guns.

PA1604 - Inspect, clean, and determine conditions of spray guns and equipment.

PA1605 - Select and use the National Institution of Safety and Health (NIOSH) approve personal painting/refinishing respirator systems.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
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Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
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Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
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Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
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Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
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Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
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Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading

Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Prepare a vehicle for painting/refinishing
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Evaluate the condition of the vehicle’s paint
Describe methods for removing the damaged paint if needed
Properly prepare and treat bare metal surfaces
Correctly sand and featheredge surfaces
Apply an undercoat
Mask a vehicle properly
Describe different types of metals used in vehicle construction
Select the right power tool or piece of equipment for the job
Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants. HP-I
REF02 Modules 1
REF04 Modules 1
Inspect and identify substrate, type of finish, and surface condition; develop and document a plan for refinishing using a total product system. HP-I
REF02 Modules 1
Remove paint finish in accordance with manufacturer’s recommendations. HP-I
REF02 Modules 2
Dry or wet sand areas to be refinished. HP-I
REF02 Modules 4
REF03 Modules 2
Featheredge damaged areas to be refinished. HP-I
REF02 Modules 4
Apply suitable metal treatment or primer in accordance with total product systems. HP-I
CPS01 Modules 3
REF02 Modules 4
Mask and protect other areas that will not be refinished. HP-I
REF02 Modules 2
Mix primer, primer-surfacer, or primer-sealer. HP-I
REF01 Modules 5
REF02 Modules 4
REF03 Modules 4
Apply primer onto surface of repaired area. HP-I
REF02 Modules 4
Apply two-component finishing filler to minor surface imperfections. HP-I
STS01 Modules 2
Dry or wet sand area to which primer-surface has been applied. HP-I
REF02 Modules 4
Dry sand area to which two-component finishing filler has been applied. HP-I
STS01 Modules 2
Remove dust from area to be refinished, including cracks or moldings of adjacent areas. HP-I
REF02 Modules 4
REF03 Modules 3, 4
Clean area to be refinished using a final cleaning solution. HP-I
REF03 Modules 3
Remove, with a tack rag, any dust or lint particles from the area to be refinished. HP-I
REF02 Modules 3, 4
REF03 Modules 4
Apply suitable sealer to the area being refinished when sealing is needed or desirable. HP-I
REF03 Modules 4
Scuff sand to remove nibs or imperfections from a sealer. HP-I
Apply stone chip resistant coating. HP-I
CPS01 Modules 4
REF03 Modules 3
Restore corrosion-resistant coatings, caulking, and seam sealers to repaired areas. HP-I
CPS01 Modules 3, 4
REF02 Modules 5

Prepare adjacent panels for blending. HP-I
REF02 Modules 4, 5
Prepare plastic panels for refinishing. HP-I
REF02 Modules

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. SIMS Virtual Paint Sprayer Hand tools Spray Booth

Assorted tool catalogs Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks:

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1700 REFINISHING OPERATIONS
Number: 1700 **Hours:** 25.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to apply various types of finishes.

Tasks:

PA1701 - Prepare surface for topcoat system (degrease and tack).

PA1702 - Apply primer-sealer.

PA1703 - Apply single-stage finish.

PA1704 - Apply basecoat/clearcoat finish.

PA1705 - Describe the application of stone chip-resistant coating to lower body areas.

PA1706 - Demonstrate paint manufacturer's mixing ratio when preparing paint products.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

  Supporting Anchor/Standards:
  KEY IDEAS/DETAILS GRADES 9-10-11-12
  Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
  Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
  Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
  CRAFT & STRUCTURE GRADES 9-10-11-12
  Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
  Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
  Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
  Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
  Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
  Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
  Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
  Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
  Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.

RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.
Standard Area - CC.2.1: Numbers and Operations

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Describe color theory and how it relates to refinishing
Define the terms relating to color
Describe the use of a computerized color matching system
Make let-down and spray-out test panels
Explain how to tint solid and metallic colors
Summarize the repair procedures for multistage finishes
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Select the right power tool or piece of equipment for the job
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Mask a vehicle properly

Determine type and color of paint already on vehicle by manufacturer’s vehicle information label. HP-I
DAM01 Modules 4
REF03 Modules 1
Shake, stir, reduce, catalyze/activate, and strain paint according to manufacturer’s procedures. HP-I
REF03 Modules 4
Apply finish using appropriate spray techniques (gun arc, gun angle, gun distance, gun speed, and spray pattern overlap) for the finish being applied.
HP-I
REF02 Modules 3
Apply selected product on test and let-down panel in accordance with manufacturer’s recommendations; check for color match. HP-I
REF03 Modules 2
Apply single stage topcoat for refinishing. HP-I
REF03 Modules 4
Apply basecoat/clearcoat for panel blending or partial refinishing. HP-I
REF03 Modules 3, 4
Apply basecoat/clearcoat for overall refinishing. HP-G
REF03 Modules 4
Denib, buff, and polish finishes where necessary. HP-I
REF04 Modules 2
Identify the types of rigid, semi-rigid or flexible plastic parts to be refinished; determine the materials, preparation, and refinishing procedures. HP-I
REF02 Modules 4
REF03 Modules 3, 4
Refinish rigid, semi-rigid, and flexible plastic parts. HP-G
REF03 Modules 3, 4
Apply multi-stage (tricoat) coats for panel blending or overall refinishing. HP-G REF03 Modules 4
Identify and mix paint using a formula. HP-G
REF01 Modules 5
Identify poor hiding colors, determine necessary action. HP-G
REF03 Modules 3
Tint color using formula to achieve a blendable match. HP-G
REF03 Modules 5
Identify alternative color formula to achieve a blendable match. HP-G
REF03 Modules 2

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)

Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests

Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. SIMS Virtual Paint Sprayer Hand tools Spray Booth Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1800 BLENDING OPERATIONS
Number: 1800 **Hours:** 20.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to prepare and blend base/clear coat finishes.

Tasks:

PA1802 - Blend basecoat/clearcoat finish.

PA1803 - Tint and blend color coat.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12

Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12

Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.

Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12

Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

RANGE OF WRITING GRADES 9-10-11-12

Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

  Supporting Anchor/Standards:

  NUMBERS AND OPERATIONS

  Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

  Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

  Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

  Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
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Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:

Describe color theory and how it relates to refinishing
Define the terms relating to color
Describe the use of a computerized color matching system
Make let-down and spray-out test panels
Explain how to tint solid and metallic colors

Summarize the repair procedures for multistage finishes
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Select the right power tool or piece of equipment for the job
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Mask a vehicle properly
Explain how damage repair estimates are determined
Identify and explain the most common abbreviations used in collision estimating guides
Determine type and color of paint already on vehicle by manufacturer’s vehicle information label. HP-I
REF03 Modules 1
Shake, stir, reduce, catalyze/activate, and strain paint according to manufacturer’s procedures. HP-I
REF03 Modules 4
Apply finish using appropriate spray techniques (gun arc, gun angle, gun distance, gun speed, and spray pattern overlap) for the finish being applied.
HP-I
REF02 Modules 3
Apply selected product on test and let-down panel in accordance with manufacturer’s recommendations; check for color match. HP-I
REF03 Modules 2
Apply single stage topcoat for refinishing. HP-I
REF03 Modules 4
Apply basecoat/clearcoat for panel blending or partial refinishing. HP-I
REF03 Modules 3, 4
Apply basecoat/clearcoat for overall refinishing. HP-G
REF03 Modules 4
Denib, buff, and polish finishes where necessary. HP-I
REF04 Modules 2
Identify the types of rigid, semi-rigid or flexible plastic parts to be refinished; determine the materials, preparation, and refinishing procedures. HP-I
REF02 Modules 4
REF03 Modules 3, 4
Refinish rigid, semi-rigid, and flexible plastic parts. HP-G
REF03 Modules 3, 4
Apply multi-stage (tricoat) coats for panel blending or overall refinishing.
HP-G REF03 Modules 4
Identify and mix paint using a formula. HP-G
REF01 Modules 5
Identify poor hiding colors, determine necessary action. HP-G
REF03 Modules 3
Tint color using formula to achieve a blendable match. HP-G
REF03 Modules 5
Identify alternative color formula to achieve a blendable match. HP-G
REF03 Modules 2

Remediation:
Re-teach major concepts
Review with teacher assistance
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Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
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Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
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Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
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Pre/Post Tests
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Individual Projects
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Portfolio
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Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. SIMS Virtual Paint Sprayer Hand tools Spray Booth Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 1900 DETAILING
Number: 1900 **Hours:** 20.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to completely detail a vehicle.

Tasks:

PA1901 - Remove overspray.

PA1902 - Clean exterior of vehicle.

PA1903 - Clean interior of vehicle.

PA1904 - Apply decals and stripes.

PA1905 - Demonstrate color sanding and polishing techniques.

PA1906 - Clean body openings.

PA1907 - Clean exterior and interior glass surfaces.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author's claim for solving a technical problem.
Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects
Properly remove and install vinyl decals and striping
Prepare the surface before applying adhesive overlay material or before custom painting
Explain various techniques for doing custom paint work
Remove, align, and install molding and emblems

Skill:
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Select the right power tool or piece of equipment for the job

Mask a vehicle properly

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills

Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Hand tools Assorted tool catalogs Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com

Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 2000 ESTIMATING DAMAGE ANALYSIS
Number: 2000 **Hours:** 12.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to identify different types of vehicle damage.

Tasks:

PA2001 - Identify vehicle by VIN (vehicle identification number).

PA2002 - Collect vehicle and customer data.

PA2003 - Use collision estimating guides/estimating software.

PA2004 - Identify different types of vehicle damage (direct and indirect).

PA2005 - Indicate repair and replace decisions.

PA2006 - Prepare an estimate/repair sequence/calculate repair costs/supplements.

PA2007 - Explain the need for a pre-repair scan and post-repair scan of the vehicle computer.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

  Supporting Anchor/Standards:
  KEY IDEAS/DETAILS GRADES 9-10-11-12
  Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
  Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
  Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
  CRAFT & STRUCTURE GRADES 9-10-11-12
  Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
  Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
  Standard CC.3.5.9-10.F / Standard CC.3.5.11-12.F Analyze the author’s purpose in providing an explanation, describing a procedure...and Analyze the structure of the relationships among concepts in a text.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10
  Standard CC.3.5.9-10.G Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).
  Standard CC.3.5.9-10. H Assess the reasoning in a text to support the author’s claim for solving a technical problem.
  Standard CC.3.5.9-10. I Compare and contrast findings presented in a text to those from other sources, etc.
  INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12
  Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
  Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.

Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.
Standard - CC.1.2.9-10.A
Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
Standard - CC.1.2.9-10.B
Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences and conclusions based on an author's explicit assumptions and beliefs about a subject.
Standard - CC.1.2.9-10.C
Apply appropriate strategies to analyze, interpret, and evaluate how an author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
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Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

NUMBERS AND OPERATIONS
Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers
GEOMETRY
Standard 2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles.
Standard 2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.
Standard 2.3.HS.A.13 Analyze relationships between two dimensional and three dimensional objects.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
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Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:
Explain how damage repair estimates are determined
Identify and explain the most common abbreviations used in collision estimating guides
Make a rough estimate of the time required to refinish a given collision repair job
Explain the difference between direct and indirect damage and locate both types
Identify the key operating features of manual and computerized estimating systems
Compare manual and computerized estimating
Describe different types of metals used in vehicle construction
Summarize the deformation effects of impacts on steel
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Explain how damage repair estimates are determined
Select the right power tool or piece of equipment for the job
Mask a vehicle properly

Remediation:
Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
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Computer research on an approved topic
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Special Adaptations:

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Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
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Individual Projects
Any content related assessment
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Resources/Equipment:

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Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 2100 PLASTIC REPAIR
Number: 2100 **Hours:** 10.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to identify plastic and perform tests to make repair decisions.

Tasks:

PA2101 - Identify plastic to make repair decisions.

PA2102 - Use plastic repair methods (adhesives and welding).

PA2103 - Repair plastics with two-part adhesives, with and without reinforcement.

Standards / Assessment Anchors
Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
Standard CC.3.5.9-10 B / Standard CC.3.5.11-12 B Determine the central ideas or conclusions of a text; etc.
Standard CC.3.5.9-10.C / Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.
CRAFT & STRUCTURE GRADES 9-10-11-12
Standard CC.3.5.9-10. D / Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.
Standard CC.3.5.9-10.E / Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc.
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Supporting Anchor/Standards:

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PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12

Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.

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RESEARCH GRADES 9-10-11-12

Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

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Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.

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Connecting Anchor/Standard:

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  Supporting Anchor/Standards:

  NUMBERS AND OPERATIONS

  Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.

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  Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

  Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers

Instructional Activities:

Knowledge:

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Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools
Complete assigned individual projects

Skill:

List typical plastics and composite applications in vehicle construction
Identify automotive plastics through the use of international symbols (ISO codes) and by making a trial-and-error weld
Describe the basic differences between welding metal and welding plastic
Outline the basics of hot-air and airless welding

Repair interior and unreinforced hard plastics
Perform two-part adhesive repairs
Repair RRIM and other reinforced plastics
Describe different types of metals used in vehicle construction
Properly clean a vehicle using soap, water, air pressure, and a wax-grease remover
Select the right power tool or piece of equipment for the job
Mask a vehicle properly
Identify and explain the most common abbreviations used in collision estimating guides
Identify the types of plastics; determine repairability. HP-I
DAM02 Modules 2 PLA01 Modules 1, 3 PLA02 Modules 1, 4
Identify the types of plastics repair procedures; clean and prepare the surface of plastic parts. HP-I
PLA01 Modules 1, 2 PLA02 Modules 1, 2
Replace or repair rigid, semi-rigid, and flexible plastic panels according to manufacturer's/industry specifications. HP-G
EXT01 Modules 1, 2, 3, 4, 5, 6 EXT02 Modules 2, 3, 4 PLA01 Modules 2 PLA02 Modules 2, 3
Remove or repair damaged areas from rigid exterior sheet-molded compound (SMC) panels. HP-G
EXT02 Modules 2 PLA02 Modules 3
Replace bonded sheet-molded compound (SMC) body panels; straighten or align panel supports. HP-G
EXT02 Modules 2

Remediation:
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Review games
Retest or alternative assessment
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Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
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Monroe Career & Technical Institute

Course: Auto Collision and Repair

Unit Name: 2200 RESTRAINT SYSTEMS
Number: 2200 **Hours:** 60.00
Dates: Spring 2025

Description/Objectives:

Student will know and be able to identify, inspect, and disarm supplemental restraint systems.

Tasks:

PA2201 - Research auto manufacturers' recommended safety procedures to prevent accidental deployment of supplemental restraint systems.

PA2202 - Identify supplemental restraint systems.

PA2203 - Remove and reinstall seat belt components.

Standards / Assessment Anchors

Focus Anchor/Standard #1:

- Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5

Supporting Anchor/Standards:

KEY IDEAS/DETAILS GRADES 9-10-11-12
Standard CC.3.5.9-10.A / Standard CC.3.5.11-12A Cite specific textual evidence, etc.
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Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.
Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.
Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.
RANGE OF READING GRADES 9-10-11-12
Standard CC.3.5.9-10.J / Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

Focus Anchor/Standard #2:

- Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6

Supporting Anchor/Standards:

TEXT TYPES AND PURPOSE GRADES 9-10-11-12
Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.
Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.
PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12
Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.
Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D 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.
Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing products.
RESEARCH GRADES 9-10-11-12
Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.
Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.
Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.
RANGE OF WRITING GRADES 9-10-11-12
Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiences...etc.

Connecting Anchor/Standard:

- Pennsylvania Core Standards for Mathematics Standard 2.0

Supporting Anchor/Standards:

Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems.
Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.
Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers
ALGEBRA
Standard 2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.

Instructional Activities:

Knowledge:
Complete Objective Worksheet for each assigned module
Participate in theory presentation and respond to questions
Complete vocabulary activities
Participate in group activities as directed
Take notes during theory presentation and maintain a notebook
Complete daily task sheet recording day's activities and work
Complete assigned worksheets
Complete assigned reading
Participate in class discussions
Maintain student portfolio of assignments and notes
Demonstrate safe use of tools

Complete assigned individual projects

Skill:
Explain the difference between an active and a passive restraint system
Learn how to service seat belts
Describe the operation of air bag systems
Repair are bag systems safely
Explain the difference between an active and a passive restraint system
Learn how to service seat belts
Describe the operation of air bag systems
Repair are bag systems safely
Disarm SRS in accordance with manufacturer’s specifications/procedures. HP-I
RES01 Modules 1
Inspect, remove, and replace sensors and wiring in accordance with manufacturer’s specifications/procedures; ensure sensor orientation. HP-G
DAM04 Modules 1
RES01 Modules 1
Inspect, remove, replace, and dispose of deployed SRS modules in accordance with manufacturer’s specifications/procedures. HP-G
DAM04 Modules 1
RES01 Modules 1
Verify that SRS is operational in accordance with manufacturer’s specifications/procedures. HP-I
RES01 Modules 2
Inspect, remove, replace, and dispose of non-deployed SRS in accordance with manufacturer’s specifications/procedures. HP-G
RES01 Modules 1
Diagnose and repair SRS using fault codes and test equipment. HP-G
RES01 Modules
Inspect, remove, and replace seatbelt and shoulder harness assembly and components in accordance with manufacturer’s specifications/procedures. HP-G
DAM04 Modules 1
RES01 Modules 3, 4
Inspect restraint system mounting areas for damage; repair in accordance with manufacturer’s specifications/procedures. HP-G
DAM04 Modules 1
RES01 Modules 3
Verify proper operation of seatbelt in accordance with manufacturer’s specifications/procedures. HP-G
RES01 Modules 3

Remediation:

Re-teach major concepts
Review with teacher assistance
Study group
Worksheets
Individual tutoring
Group tutoring
Peer tutoring
Review games
Retest or alternative assessment
Technology integration
Study guides
Computer assisted instruction

Enrichment:
Proceed to next assigned task
Assist another student
Computer research on an approved topic
Individual project work

Special Adaptations:

Extended Time (assignments and/or testing)
Preferential Seating
Directions/Comprehension Check (frequent checks for understanding)
Study Guide
Directions and/or Tests Read Aloud
Adapted Tests and/or Assignments
Use of Calculator
Taking Tests in Alternate Setting (or if requested)
Verbal/Gestural Redirection (prompts to remain on task)
Drill and Practice (Repetition of Material)
Small Group Instruction
Provide Visual Model to Accompany Verbal Directions (Written/Oral Directions)
Use of Computer (Access to)
Positive Reinforcement
Have Student Repeat Directions
Wait Time
Access to School Counselor
Use of Highlighter/Highlighted Text
Provide Frequent Feedback
Provide Frequent Breaks
Regular Notebook Check
Variety of Assessment Methods
Highly Structured Classroom
Syllabus for Major Projects
Limited, Short Directions
Grading Rubric
Communication Regarding Behavior & Consequences (PBS)
Clear Language for Directions
Provide Opportunities to Retest
Frequent Review Sessions
Use a variety of Modalities when Introducing Skills/Concepts
Allow Oral Answers for Testing
Cue for Oral Response
De-Escalation Opportunities
Daily Classwork Check
Encourage Student to Check Work Before Turning In
Opportunities for Repeated Practice of MATH Skills
Provide repetition During Initial Instruction
Allow Pre-read of Questions Before Reading Written Passage
Provide Verbal and Written Directions
All Vocabulary to be Defined Before Testing
Time out
Encouragement to Participate in Positive Leadership Roles
Student Self-Evaluation for Behavior
Exempt from reading Aloud in Front of Peers

Safety:

Student must:
Pass safety test with 100% for all tools and equipment
Handle material in a safe and workmanlike manner
Use protective clothing and equipment
Use hand tools in a safe manner
Use adequate ventilation when working in enclosed area
Follow manufacturer’s directions when using any product, tool, equipment, etc.
Use proper safety precautions when using /operating hand tools.
Use tools and equipment in a professional work like manner according to OSHA standards
Know and follow the established safety rules at all times

Assessment:

Worksheets
Quizzes
Pre/Post Tests
Time Cards
Writing Activities
Rubrics
Individual Projects
Any content related assessment
Portfolio
SP/2 Safety Training web based assessment

Resources/Equipment:

Duffy, J. E. (2016). Auto Body Repair Technology (6th ed.). Cengage Learning..Clifton Park: NY: Thomson Delmar Learning. Duffy, J.E., Uhrina P. (2016). Student Workbook and Activity Guide to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Magee, R. (2016). Instructor's Manual to Accompany Collision Repair Fundamental.Clifton Park: NY: Thomson Delmar Learning. Inter-Industry Conference On Auto Collision Repair. I-CAR Advance Delivery Curriculum. Chicago:IL. Automotive Body Repair News (ABRN) magazine Volume 47-49. Hand tools Computer Assorted vehicles Fire extinguisher Respirator Eye Wash Station Internet websites: ICAR, ASE, SP/2 Safety Training ICAR Student Discs Internet resourcesHyperlinks: www.icar.com