



2023-2024

NWKTC Catalog and Student Handbook

Auto Body (Automotive Collision & Repair)

NOTE: This program is currently in its final year; students will no longer be accepted

Description:

The Auto Body (Automotive Collision & Repair) program is designed for the student to learn basic concepts and skills during the first year. Examples of some of these skills are windshield replacement, MIG welding, minor metal straightening, basic refinishing, and minor electrical repair. These basic skills are the foundation for the more advanced areas of the trade, which the second-year student will encounter. Some examples of these advanced areas are major collision, custom paint techniques, color matching, metal fabrications, basic wheel alignment, and advanced welding.

The curriculum is directly related to trade standards and employment opportunities. As repair methods change, the curriculum is continually updated to provide instruction on the safe and proper use of the latest tools, equipment, products, and procedures currently being used in the industry. Instruction includes both shop and classroom situations with the emphasis on the actual "hands-on" experiences. Applied shop instruction involves individualized live work on customer and students' vehicles, shop projects, and demonstration mock-up tasks.

Degree/Certificates awarded:

AAS
Tech Cert C

Program Learning Outcomes:

Upon successful program completion, students are able to:

1. Demonstrate safety procedures involved in the collision repair industry.
2. Diagnose and make proper structural/nonstructural repairs.
3. Replace and make adjustments of stationary and moveable glass.
4. Refinish auto to OEM (original equipment manufacturer) standards.
5. Analyze mechanical, electrical, and electronic components.
6. Perform basic welding skills.
7. Perform safe disarming, handling, and installation of airbags.
8. Track material costs, and provide accurate estimates.
9. Evaluate and use information technology effectively.

- 10. Demonstrate effective reading, writing, speaking, listening, and time management skills.
- 11. Demonstrate mathematical skills.
- 12. Operate basic computer programs.
- 13. Identify and solve problems, applying knowledge in a critical, creative, and ethical manner.

Program Schedule:

Students will attend class from 7:00 a.m. – 3:30 p.m., Monday through Friday.

Miscellaneous Notes: During the sophomore year the students may participate (with Instructor approval) in the Occupational Work Experience (OWE) four weeks before the ending date of the program.

PROGRAM GUIDE

FRESHMAN: FIRST SEMESTER

Course Name

Non-Structural A&D Repair I
 Structural A&D Repair I
 Painting & Refinishing I
 Mechanical & Electrical
 Damage Appraising I
 Technical Writing (or Communications Elective)

FRESHMAN: SECOND SEMESTER

Course Name

Personal Finance (Required)
 Computer Fundamentals and Applications (or Natural & Applied Science)
 Non-Structural A&D Repair II
 Structural A&D Repair II
 Paint & Refinishing II
 Mechanical & Electrical II
 Hybrid Training I

SOPHOMORE: FIRST SEMESTER

Course Name

Non-Structural A&D Repair III
 Structural A&D Repair III
 Damage Appraising II
 Paint & Refinishing III
 Workplace Ethics (or Gen Ed Elective)
 Technical Math or Technical Math w/review (or Math Elective)

SOPHOMORE: SECOND SEMESTER

Course Name

Forklift Operator Training
 Non-Structural A&D Repair IV
 Structural A&D Repair IV
 Paint & Refinishing IV
 Composite Applications*
 Mechanical & Electrical III*

COURSE DESCRIPTIONS

CR 120 NON-STRUCTURAL A&D REPAIR I

4 CR

Through a variety of classroom and/or shop/lab learning and assessment activities, students in this course will: explore the components of safety pertaining to auto collision and repair; explore the parts and construction of vehicles; explore opportunities in the auto collision industry; identify metal straightening techniques; identify the application and use of body fillers; demonstrate proper use, set-up and storage of welding equipment; distinguish between weldable and non-weldable materials; demonstrate fundamental industry standard recommended welds; identify plastics and adhesives used in automotive industry; explain the general purpose of damage, estimation and repair orders; explore the processes required for outer body panel repairs, replacements and adjustments; and demonstrate fundamental cutting procedures.

CR 122A NON-STRUCTURAL A&D REPAIR II

4 CR

Through a variety of classroom and/or lab/shop learning and assessment activities, students in this course will: identify trim and hardware to be protected; examine what to consider when working with movable glass; perform outer body panel repairs; Perform outer body replacements and adjustments; Perform metal straightening techniques; Perform body filling techniques; Perform metal finishing techniques; Use welding procedures in non-structural damage repair; Distinguish between mechanical and electrical components; apply safety standards for the collision repair industry; use cutting procedures in non-structural damage repair; and determine procedures necessary for working with plastics and adhesives.

CR 140A STRUCTURAL A&D REPAIR I

2 CR

Through a variety of classroom and/or lab/shop learning and assessment activities, students in this course will: identify measuring procedures; analyze the basic structural damage conditions; identify the safety requirements pertaining to structural damage repair; analyze frame repair methods; analyze unibody inspection and measurement and identify procedures of welding for structural repair.

CR 142A STRUCTURAL A&D REPAIR II

2 CR

Through a variety of classroom and/or shop/lab learning and assessment activities, students in this course will: apply safety requirements pertaining to structural damage repair; analyze frame inspection and repair procedures; determine direct and indirect damage for structural repair; analyze unibody inspection, measurement, and repair procedures; perform welding techniques for structural repair; and identify cutting procedures for structural repair.

CR 160A PAINTING & REFINISHING I

3 CR

Through a variety of classroom and/or shop/lab learning and assessment activities, students in this course will: identify safety and personal health hazards according to OSHA guidelines; determine the different types of substrates and sanding materials relevant to auto body surface preparation; identify

the process to clean and prepare a substrate for paint; distinguish between the properties, uses and manufacturer specifications of metal treatments and primers; distinguish among the various types of spray guns and equipment; explore various paint codes and specifications for use; Identify the various paint systems; explore the types of paint defects; distinguish between damage and non-damage related corrosion; and identify final detail procedures.

CR 162A PAINTING & REFINISHING II

3 CR

Through a variety of classroom and/or shop/lab learning and assessment activities, students in this course will: select proper personal protective equipment; perform proper shop operations according to OSHA Guidelines; remove paint coatings; apply corrosion resistant coatings; demonstrate proper spray gun operation and cleaning procedures; select proper painting and substrate materials for projects; analyze paint defects, causes and cures; repair paint defects; measure paint mil thickness; and determine final detail procedures for given projects.

CR 180 MECHANICAL & ELECTRICAL

3CR

Through classroom and/or lab/shop learning and assessment activities, in this course students will: determine how to diagnose steering and suspension; diagnose electrical concerns; complete headlamp and fog/driving lamp assemblies and repairs; demonstrate self-grounding procedures for handling electronic components; determine diagnosis, inspection and service needs for brake system hydraulic components; examine components of heating and air conditioning systems; determine the inspection, service and repair needs for collision damaged cooling system components; distinguish between the under car components and systems; and determine the diagnosis, inspection and service requirements of active and passive restraint systems.

CR 182 MECHANICAL & ELECTRICAL II

3 CR

This course goes beyond the basics to include disarming/arming and installing air bags. Suspension components replacement and wheel alignment are also included. Heating and air conditioning repair, engine radiator replacement, and engine components damaged from a collision are included in this course. The emphasis is on live work.

CR 185 DAMAGE APPRAISING I

3CR

This course emphasizes the importance of writing accurate estimates and analyzing collision damage in the collision industry. Estimates are generated by hand or by computer, understanding and reading repair orders is also included in this course.

CR 195 HYBRID TRAINING I*

2 CR

Students are introduced to hybrid technology training and the repair of hybrid vehicles. Safety will be an emphasis in this course.

CR 220A NON-STRUCTURAL A&D REPAIR III

4 CR

Through a variety of classroom and/or lab/shop learning and assessment activities, students in this course will: remove and install trim and hardware; determine process and procedures necessary for movable glass repair; repair outer body panel; replace and adjust outer body panels; remove and install mechanical and electrical components; demonstrate safety protocol appropriate for the auto repair setting; perform intermediate welding skills on non-structural damage repairs; and perform plastic and adhesive repairs.

CR 222A NON-STRUCTURAL A&D REPAIR IV

5 CR

Through a variety of classroom and shop/lab learning and assessment activities, students in this course will: remove trim and hardware; install trim and hardware; repair movable glass; protect adjacent body panels; repair outer body panel; replace outer body panels; adjust outer body panels; replace mechanical and electrical components; demonstrate safety protocol appropriate for the auto repair setting, perform welding skills on non-structural damage repairs; and perform plastic and adhesive repairs.

CR 240A STRUCTURAL A&D REPAIR III

3 CR

Through a variety of classroom and/or shop learning and assessment activities, students in this course will: apply safety requirements pertaining to structural damage repair; perform welding and cutting techniques for structural repair; diagnose unibody direct and indirect damage; apply unibody inspection and measurement procedures; apply unibody repair procedures; apply frame inspection and measurement procedures; apply frame repair procedures; and remove fixed glass.

CR 242 STRUCTURAL A&D REPAIR IV

3 CR

Through a variety of classroom and lab/shop learning and assessment activities, students in this course will: apply safety requirements pertaining to structural damage repair; perform advanced welding and cutting techniques for structural repair; perform inspection and measurement of unibody for structural repair; repair unibody direct and indirect damage; perform frame inspection and measurement procedures; repair frame to industry standards; and remove and install fixed glass.

CR 245 DAMAGE APPRAISING II

4 CR

This course helps the student to thoroughly analyze damage by the use of electronic and mechanical measuring equipment. Practice estimates will be written on various shop projects. Live work is emphasized.

CR 260B PAINTING & REFINISHING III

3 CR

Through a variety of learning and/or shop/lab learning and assessment activities, students in this course will: identify safety and personal health hazards according to OSHA guidelines and the 'Right to Know' law; determine the different types of substrates and sanding materials relevant to auto-body surface preparation; identify the process to clean and prepare a substrate for paint; distinguish between the properties, uses and manufacturer specifications of metal treatments and primers; distinguish among the various types of spray guns and equipment; explore various paint codes and specifications for use; identify the various paint systems;

explore the types of paint defects; distinguish between damage and non-damage related corrosion; and identify final detail procedures.

CR 262 PAINTING & REFINISHING IV

4 CR

Through a variety of classroom and/or shop/lab learning and assessment activities, students in this course will: apply exemplary safety procedures in all areas of auto body painting and refinishing; perform proper cleaning procedures for a refinish; prepare adjacent panels for blending; prepare plastic panels for refinishing; protect all non-finished areas of vehicle; operate high and low volume/pressure spray gun operations for painting and refinishing; perform all paint system applications on an automobile; apply appropriate paint color matching and mixing procedures; tint color using formula to achieve a blendable match; explore the causes, effects and correction of buffing- related imperfections; explore the causes, effects and correction of pigment flotation; measure mil thickness; apply decals, transfers, tapes, wood grains, pinstripes to an automobile; apply buffing and polishing techniques to remove defects; apply cleaning techniques to automobile interior, exterior, glass and body openings; and remove overspray.

CR 275 COMPOSITE APPLICATIONS

3 CR

CR 285 MECHANICAL & ELECTRICAL III*

4 CR

This course goes beyond the basics to include disarming/arming and installing airbags. Suspension components replacement and wheel alignment are also included. Heating and air conditioning repair, engine radiator replacement, and engine components damages from a collision are included in this course. The emphasis is on live work.