

**GREAT PLAINS TECHNOLOGY CENTER
COURSE OF STUDY**

<u>Career Cluster:</u>	Transportation, Distribution and Logistics (TR)
<u>Career Pathway:</u>	Automotive Collision Repair
<u>Local Program:</u>	Combination Collision Repair Technician (TR0090008)
<u>Program Hours:</u>	Secondary Students: 1000 Hours Adult Students: 1000 Hours
<u>Instructor:</u>	Name: Anthony Josey Office Number: (580) 250-5627 E-Mail Address: ajosey@greatplains.edu
<u>Academic Credit:</u>	Secondary Students: 3 high school credits per year Adult Students: Transcript
<u>Prerequisites:</u>	None

Program Description:

Students in this program will learn how to complete non-structural collision repair and automotive refinishing. The courses that will be covered include non-structural damage analysis and minor dent repair, plastics repair, all aspects painting and refinishing. Students will also learn how to use various tools in repairing damage and to remove and install handles, moldings, trim, and bolted body parts. In addition, the student will learn to MIG weld industry standard joints following I-CAR standards. This career program also includes painting preparation, sanding processes, color matching and adjusting color, removing and installing glass, and the process of written estimates. Students will learn about handling, storage and disposal of hazardous materials and selecting proper personal protective equipment and maintenance. The hours completed in this program are aligned with ASE/NATEF standards, and ASE certification is recommended and industry recognized.

Program Goals:

Students enrolled in this program will be given the opportunity to develop the skills and attitudes needed to successfully enter the Auto Body Services field according to their personal choice, ability, and resourcefulness.

Upon achieving the goals of this program, students will:

- Become competent in the fundamental skills of the occupation.
- Become qualified for further related education and/or entry into the job market.
- Work as a team member.
- Pass at least one Occupational State of Oklahoma certification test.
- Become qualified for further related education and/or enter the job market.
- Demonstrate independence in using problem solving and critical thinking techniques in completing all work assignments.
- Develop the ability to work with limited or no supervision.
- Accept and abide by the rules and regulations established by the school and/or place of employment.

Related Career Opportunities:

- Refinishing Technician
- Non Structural Repair Technician
- Glass Replacement Specialist
- Detailing Specialist

Program Objectives:

After successful completion of this program, the student will be able to:

- Use basic measurement and mathematic techniques.
- Repair conventional and unibody frames.
- Perform body panel and structural alignments.
- Repair sheet metal and fiberglass body panels
- Utilize thermoplastic and thermosetting plastic techniques.
- Perform a variety of welding processes.
- Complete a variety of refinishing techniques.
- Replace glass.
- Prepare estimates.
- Complete a job application.

Program Course Sequence:

- HS Student and Part-time Adult (Year One): Course Sequence I
- HS Student and Part-time Adult (Year Two): Course Sequence II
- Full-time Adult (Year One): Course Sequence I and II

**DESCRIPTION OF COURSES
SEQUENCE I – Non-Structural/Customer Service**

<u>Course #</u>	<u>Course Name</u>	<u>HST</u>	<u>HSL</u>	<u>ADT</u>	<u>ADL</u>
TI00751	Introduction to Collision Repair Technology	75	0	75	0
In this course, the student will cover tools and equipment, safety, hazardous material handling and storage. The student will be taught to identify safety and hazardous warning information for products used in the collision repair industry and the Right-To-Know Act. Students will also study the collision repair industry and the preparation of the vehicle for entering the repair facility.					
TI02137	Auto Collision Damage Analysis	20	55	20	55
Within this course, the students will learn to inspect a damaged vehicle and correctly identify all damage. This damage analysis will cover the entire vehicle from minor to major damage with structural misalignment. This course will cover the different types of vehicle construction found on the road today, such as uni-body, full body-over-frame frame and the hybrid frame/semi-unibody. Students will learn to look for indicators of damage and how collision energy is managed and travels through a vehicle during a collision. Some of the measuring equipment that will be covered is the centerline gauge, tram bar, universal measuring system and computer measuring systems. Measuring of the vehicle structure will be covered with the students learning to set-up and analyze the measurements to determine damage. The students will learn to look at damage in 3-Dimension, which are length, width and height.					
TI00343	Auto Collision Non-Structural Metal Straightening/Repair	20	70	20	70
In this course, the student will learn the basics of using metal straightening tools, such as dollies and hammers to repair minor dents and dings in sheet metal. Students will cover techniques to repair contours					

and bodylines in sheet metal. Metal shrinking and stretching will be taught to help students bring the metal back to original contour. Students will learn about the different body fillers. Students will learn techniques to mix and apply body filler. Students will learn to select the proper sandpaper and sanding equipment and learn techniques to sand the cured body filler to original contour then prepare the repair for primer.

TI00344 Auto Collision Plastic Component Repair and Replacement 20 40 20 40

In this course, the student will learn to identify different types of plastic used in the construction of vehicles. Students will learn to make repair/replace decisions on plastic parts. Students will learn to prepare for both single and two-sided repairs on plastic parts. The course includes both adhesive type repairs and plastic welding. Sheet Molded Compound (SMC) identification along with one-sided and two-sided repairs will be covered.

TI00342 Auto Collision Mig (GMAW) Welding 25 80 25 80

In this course, the student will learn about the specific personal safety equipment used when MIG welding, and how to protect the vehicle when welding. The student will cover the MIG welding equipment and how to tune and trouble shoot the welder. Students will learn to join two pieces of metal using the appropriate process and joint selection. The welding joints covered will be: lap/fillet, butt, butt w/backing and plug. Students will learn techniques for welding in the vertical and overhead position using I-Car specific specifications.

TI00275 Automotive Body Panel Adjustment and Alignment 15 30 15 30

In this course, the students will learn to remove, install and align bolted body parts. Some of the parts covered in this course will be fenders, hoods, doors, decklids, bumpers and bumper covers. This course will also cover wind noise and water leak detection related to panel alignment.

TI00341 Auto Collision Written/Computerized Estimating 15 20 15 20

This course will cover how a written/computerized estimate becomes the communication tool between the repair facility and the insurance company or customer. In this course, the student will learn to create an accurate damage report by collecting the pertinent information from the customer and the vehicle. Students will learn to import digital pictures used for documentation. Students will learn how to look up parts prices and labor hours as well as how to make repair judgment calls when straightening panels. The student will assemble all of the information into a complete damage estimate.

C00000 Transportation Customer Service 0 15 0 15

In this course, the student will learn communication skills using telephone and verbal techniques. The student will cover customer greeting, checking the vehicle records, checking the customer records, presentation of the invoice and work order explanation. The student will learn how to perform customer delivery and follow-ups after the repair. Also covered will be warranties, service contracts, service bulletins, campaigns and recalls. This course will close with how to develop promotions and advertising.

Sequence I Subtotal Hours:	Theory	Lab	Total
High School Student:	190	310	500
Adult Student:	190	310	500

**DESCRIPTION OF COURSES
SEQUENCE II – Painting & Refinishing**

<u>Course #</u>	<u>Course Name</u>	<u>HST</u>	<u>HSL</u>	<u>ADT</u>	<u>ADL</u>
C00000	Overview of Painting and Refinishing	30	0	30	0
	In this course, the student will cover tools and equipment, safety, hazardous material handling and storage. The student will be taught to identify safety and hazardous warning information for products used in the Painting and Refinishing industry and the Right-To-Know Act. Students will also study the Painting and Refinishing industry and the preparation of the vehicle for entering the repair facility.				
TI00347	Auto Collision Trim and Hardware	10	20	10	20
	Within this course, the student will learn about the different fasteners used in vehicle construction. Students will cover removing and installing trim, locks and trim panels while experiencing different types of hardware or attachment methods.				
TI00348	Automotive Glass Replacement	15	45	15	45
	In this course, the student will learn to identify types of automotive glass. Common glass specialty tools used to remove and install glass will be covered. Students will learn techniques to remove and install stationary glass and be able to identify the properties and characteristics of primers, adhesives and sealants. Students will also cover movable glass and learn some techniques of trouble shooting the mechanisms and methods to remove and install movable glass components.				
TI00284	Refinish Preparation	35	70	35	70
	In this course, the student will learn how to prepare the surface for the refinishing process. The student will cover topics about sandpaper and learn techniques to choose the proper grit and how to operate sanding equipment. This course will provide instruction in masking techniques and products used to mask and protect areas not in the refinish operation. The students will learn proper techniques for block and finish sanding prior to topcoat application. Students will learn to apply proper substrate cleaning before the application of refinish products.				
TI00831	Refinish Application	20	75	20	75
	In this course, spray gun operation will be covered in great detail and applied to different products used in refinishing. Students will learn about corrosion protection products and how to mix and apply them, which will include etching primers, primer surfacer and sealing materials. Seam sealers and chip resistant coatings will be covered to demonstrate their role and application process. Students will learn about topcoats, like basecoat/clear coat products and their application techniques. Included in this course is instruction to determine the cause and corrective action for finish failures.				
TI00285	Refinish Color Adjustment	15	60	15	60
	In this course, the students will learn to make a spray-out panel and how to evaluate the color match. Techniques and strategies for adjusting the color for an acceptable color match will be taught. Students will learn techniques to help adjust high metallic/mica colors as well as tri-coat colors.				
TI00830	Refinish Blending and Painting Defects	10	35	10	35
	In this course, the student will learn masking techniques specific to the blending. Students will learn how to apply the refinish material to perform an undetectable repair. Included in this course will be instruction on how to determine the cause and corrective action for refinishing defects and failures.				

TI00283 Automotive Detailing**10 50 10 50**

In the detailing course, the student will learn to complete the refinishing repair. The student will learn to sand and polish the refinish material after curing, prepare for delivery by washing and cleaning interior and exterior of the vehicle.

Sequence II Subtotal Hours:	Theory	Lab	Total
High School Student:	145	355	500
Adult Student:	145	355	500

Program Total:	Theory	Lab	Total
High School Student:*	335	665	1000
Adult Student:	335	665	1000

* High school students may complete this program in an adult enrollment status if necessary. Please see your instructor or counselor for details.

NATEF Hours

NATEF Area	NATEF Required Hours	Combination Collision Repair Hours
Nonstructural Repair	300	330
Painting & Refinishing	300	435
Welding	75	80
DAECS	45	75
Total NATEF Hours	720	920

Evaluation Policy:**Employability Grades (100 points per week; 30% of final grade)**

The employability skills grade is based on 20 points per day (which may include: attitude, attendance, safety, punctuality, cooperation, participation, clean-up, class preparation, school/classroom rules, and time management). Points will be deducted if these responsibilities are not met at the instructor's discretion. Students will be allowed to make up unearned employability points for **excused** absences only. Full credit will be given for assignments/tests that have been made up due to excused absences only (see Student Handbook).

Performance Grades (40% of final grade)

- Live projects
- Performance or skill tests
- Homework
- Written Assignments

Test Grades (30% of final grade)

- Test grades will be based on a 100-point scale.
- Test grades include written and/or skills tests.
- A test will be given for each unit of instruction.
- Tests are to be taken as a unit is completed.
- Tests must be completed within allotted time.

Final Grade (9 Weeks Period)

9-weeks grade will be calculated by averaging grades in each category and summing each category according to their assigned weight. Progress reports will be sent to home schools at six and twelve-week intervals each semester as required or requested. Grades are accessible on-line at <http://sonisweb.greatplains.edu/studsect.cfm>

Grading Scale:

The grading scale as adopted by the Board of Education is as follows:

- A = 90 – 100
- B = 80 – 89
- C = 70 – 79
- D = 60 – 69
- F = Below 60
- W = Withdrawn
- I = Incomplete
- N = No Grade (Refer to Student Handbook)

Make-Up Work Policy:

All Make-Up Work Is The Responsibility Of The Student. Make-up work will be handled as specified in the Student Handbook. Please be sure to read and understand all student policies, especially make-up of assignments, tests and employability due to absences. Students should always arrange for any make-up work with the instructor as per the Student Handbook. Students should keep track of his or her progress and grades.

Attendance Policy:

For specific information related to attendance and tardiness refer to the Student Handbook. Students should keep a written record of their absences and tardiness.

Course Requirements and Expectations:

The general course requirements and expectations include:

- Teaching methods consist of lecture and “hands on” projects.
- The student must demonstrate the ability to apply safety to all aspects of the auto collision field.

Student Behavior Includes:

- Safety glasses **must** be worn at all times when in the shop area
- Coveralls must be worn at all times in the shop area.
- Name badges must be worn at all times.
- Follow all rules and regulations of Great Plains Technology Center.

NOTE: For additional information or questions regarding the GPTC School policies and procedures, please refer to the Student Handbook and/or the Instructor.

Industry Alignments:

- Automotive Service Excellence (ASE) - two years of training in collision repair will substitute for one year of work experience
- Inter-Industry Conference on Auto Collision Repair (ICAR)
- National Institute for Automotive Service Excellence (NATEF)

Certification Outcomes:

Tier 1 – Certifications Recognized, Administered and/or Endorsed by Industry

- ASE: CRR: STUDENT: Mechanical and Electrical Components (2060)
- ASE: CRR: STUDENT: Non-Structural Analysis and Damage Repair (2059)
- ASE: CRR: STUDENT: Painting and Refinishing (2057)
- ASE: CRR: STUDENT: Structural Analysis and Damage Repair (2058)

Tier 2 – Certifications Endorsed by Industry Organizations

- ODCTE: Non-Structural Analysis & Damage Repair Technician (2002)
- ODCTE: Painting & Refinishing Technician (2005)

CIP Code and SOC Code Crosswalk:

- CIP Code – 47.0603
- SOC Code – 49-3021.00

OCAS program codes:

- 9904 – Automotive Collision Repair and Refinishing (first year)
- 9905 – Automotive Collision Repair and Refinishing (second year)

Instructional Materials:

Students are not required to purchase textbooks or supplemental materials.

Textbooks:

Crandell, Michael. Auto Collision Repair and Refinishing. 1st ed. 978-1-63126-400-9. The Goodheart-Willcox Company, Inc., 2017.

Crandell, Michael. Workbook Auto Collision Repair and Refinishing. 1st ed. 978-1-63126-401-6. The Goodheart-Willcox Company, Inc., 2017.

I-CAR Enhanced Curriculum (CD)

DAMAGE ANALYSIS, ESTIMATING AND CUSTOMER SERVICE

For every task in Damage Analysis, Estimating and Customer Service the following safety requirements must be enforced:

Comply with personal and environmental safety practices associated with proper Personal Protection Equipment; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in local, state, and federal safety and environmental regulations. Identify vehicle system precautions and/or inspections but not limited to Supplemental Restraint System (SRS) Inspection, Advanced Driver Assistance Systems (ADAS) for hybrid/electric/alternative fuel vehicles, locations and recommended procedures before inspecting or replacing components.

I. DAMAGE ANALYSIS, ESTIMATING, AND CUSTOMER SERVICE

A. Safety Precautions

1. Select and use proper personal safety equipment; take necessary precautions with hazardous operations and materials in accordance with federal, state, and local regulations.
2. Locate OEM procedures to identify material and composition of the vehicle being repaired (mild steel, high strength steel, aluminum, etc.).
3. Locate procedures and precautions that may apply to the vehicle being repaired.
4. Identify vehicle system precautions and/or inspections to include but not limited to supplemental restraint system (SRS), driver assistance systems (ADAS), hybrid/electric/alternative fuel vehicles, locations and recommended procedures before inspecting or replacing components.
5. Perform vehicle clean-up; complete quality control using a checklist on operations performed.

I. DAMAGE ANALYSIS, ESTIMATING, AND CUSTOMER SERVICE

B. Damage Analysis

1. Position the vehicle for inspection under proper lighting; take photos to identify the vehicle and document damage.
2. Identify components to be removed to gain access to damaged areas.
3. Analyze damage to determine appropriate methods for overall repairs.
4. Determine the direction, point(s) of impact, and extent of direct, indirect, and inertia damage.
5. Gather details of the incident/accident necessary to determine the full extent of vehicle damage.
6. Identify and record pre-existing damage.
7. Identify and record prior repairs.
8. Perform visual inspection of structural components.
9. Identify structural damage using measuring tools and equipment.

10. Perform visual inspection of non-structural components.
11. Determine parts, components, material type(s) and procedures necessary for a proper repair.
12. Identify type and condition of finish; determine refinish labor operations as required.
13. Identify suspension, electrical, and mechanical component physical damage.
14. Identify safety systems physical damage.
15. Identify interior component damage.
16. Identify add-on accessories and modifications.
17. Identify single (one time) use components.
18. Identify and document illuminated dash malfunction indicator lamp(s) (MIL).
19. Perform a pre-repair inspection of the vehicle with the customer. Record fit and finish concerns (color mismatch, unrelated prior damage and prior repairs).

I. DAMAGE ANALYSIS, ESTIMATING, AND CUSTOMER SERVICE

C. Estimating

1. Determine and record customer/vehicle owner information.
2. Identify and record vehicle identification number (VIN) information, including nation of origin, make, model, repair type, production date, engine type, build data, and assembly plant.
3. Identify and record vehicle mileage and options, including trim level, paint code, transmission, accessories, and repair history.
4. Identify safety systems; determine precautions, inspections and replacement items as required.
5. Apply appropriate estimating and parts nomenclature (terminology).
6. Determine and apply appropriate estimating sequence.
7. Utilize estimating procedure pages.
8. Apply estimating footnotes, headnotes, and line notes as needed.

9. Identify operations requiring labor value judgment.
10. Select appropriate labor code for each operation (structural, non-structural, mechanical, and refinish).
11. Select and price OEM parts, optional OEM parts, aftermarket parts, recycleable/used parts, remanufactured, reconditioned parts; verify availability, compatibility, and condition.
12. Determine necessary sublet operations.
13. Determine included and non-included operations and miscellaneous items.
14. Recognize and apply overlap deductions.
15. Determine additional material and charges.
16. Determine refinishing material and charges.
17. Apply math skills to establish charges and totals.
18. Identify differences between computer generated and manually written estimates.
19. Identify procedures to restore corrosion protection; establish labor values, and material charges.
20. Recognize the cost effectiveness of the repair and determine the approximate vehicle retail, and repair value.
21. Recognize the differences in estimating platforms when using different information provider systems.
22. Verify accuracy of estimate compared to the actual repair and replacement operations.
23. Determine telematic/connectivity of the vehicle and place vehicle in service mode.
24. Identify vehicle safety recalls using the vehicle identification number (VIN).
25. Review damage report and analyze damage to determine appropriate methods for overall repair; communicate with customer to verify accuracy and resolve discrepancies.

I. DAMAGE ANALYSIS, ESTIMATING, AND CUSTOMER SERVICE

D. Vehicle Construction and Parts Identification

1. Identify type of vehicle construction (unibody, body-over-frame).

2. Recognize the different collision damage between unibody and body-over-frame vehicles.
3. Identify impact energy absorbing components.
4. Identify different types of substrates (steel types, aluminum, magnesium, plastic, composites, etc.); determine repair procedures.
5. Identify vehicle glass components and repair/replacement procedures.
6. Identify add-on accessories.

I. DAMAGE ANALYSIS, ESTIMATING, AND CUSTOMER SERVICE

E. Customer Relations and Sales Skills

1. Introduce yourself, acknowledge and greet customer/client/visitor; offer assistance.
2. Listen to customer/client; collect information and identify customers/client's concerns, needs and expectations.
3. Establish cooperative attitude with customer/client.
4. Deal with dissatisfied customer/client, seek resolution.
5. Identify customer/client preferred communication method; follow up to keep customer/client informed about part repair process.
6. Recognize basic claims handling procedures; explain to customer/client.
7. Project positive attitude and professional appearance.
8. Provide and review warranty information.
9. Provide and review technical and consumer protection information.
10. Estimate and explain duration of out-of-service time.
11. Demonstrate negotiation skills to obtain a mutual agreement.
12. Interpret and explain estimate to customer/client.