

# Auto Collision Repair and Refinishing Technician

Program Number: 32-405-1

## Two-Year Technical Diploma

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

### About the Program

The two-year Auto Collision Repair and Refinishing Technology Program is designed to provide students with skills necessary to enter or advance in the collision-repair industry. Training includes structural damage alignment, repairing and replacing sheet metal panels, welding, plastic repair and refinishing vehicles to original color match with emphasis on paint mixing, tinting and blending. Considerable time is spent developing hands-on skills that are used on the job. Skills learned in this program are also valuable to individuals choosing to enter professions other than auto collision repair and refinishing.

### Application Process

To apply to the program, students must submit a complete application. A completed application consists of (1) Application; (2) Application fee; and (3) High school transcripts – or - GED/HSED test scores – or – college transcript showing an Associate, Bachelor, or higher degree from an institution other than Madison College.

### Unique Requirements for Admission

There are no unique requirements for admission to this program.

### Unique Requirements for Graduation

Students must meet two 2.0 GPA requirements to graduate. (1) GPA for entire program must be 2.0 or above; (2) GPA of combined occupational courses (405) must be 2.0 or above.

### Program Courses

**32-405-301 Basic Sheet Metal Repair & Welding Fundamentals** 5 credits

Course material covers the introduction in the use of an oxyacetylene welding/cutting outfit as related to collision repairs. A heavy emphasis is placed on the mig welding process, types of welds and techniques use of hammer and dolly, pry tools, stud guns, air and electrical tools, hydraulic-porto-power jacks and other straightening tools, used in the processes of metal finishing and plastic filling. Co-reqs: First semester core courses must be taken together: Basic Sheet Metal (32-405-301); Refinishing 1 (32-405-302); and Collision Theory 1 (32-405-361).

**32-405-302 Refinishing 1** 5 credits

The refinishing phase includes instruction in the proper use and maintenance of the spray gun, refinishing panels and fenders, spot repairing of panels and fenders, and mixing of paint formulas. Application of primers, sealers, single stage, and coat/clear coat are covered. Instruction in shop, tool and paint safety, and state and federal environmental concerns are presented. Co-reqs: First semester core courses must be taken together: Basic Sheet Metal (32-405-301); Refinishing 1 (32-405-302); and Collision Theory 1 (32-405-361).

## Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2011-2012 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their student center account for specific graduation requirements. Program requirements are subject to change.

### FIRST YEAR

First Semester	Credits	Hrs/week Lec-Lab
32-405-301 Basic Sheet Metal Repair & Welding Fund	5	0-10
32-405-302 Refinishing 1	5	0-10
32-405-361 Collision Repair/Refinishing Theory 1	3	5-0
32-405-341 Collision Mechanical Systems	2	2-2
10-104-189 Customer Relations	2	2-0
<b>Semester Total</b>	<b>17</b>	

### Second Semester

32-405-303 Non-Structural Panel Repair & Glass Servicing	5	0-10
32-405-304 Refinishing 2/Trim & Hardware	5	0-10
32-405-340 Collision Electrical Fundamentals	2	2-2
32-405-363 Collision Repair/Refinishing Theory 2	3	5-0
31-804-379 Vocational Mathematics 1	1	2-0
<b>Semester Total</b>	<b>16</b>	

### SECOND YEAR

#### First Semester

32-405-305 Auto Refinishing/Color Adjustment	5	0-10
32-405-306 Collision Structural Welding & Panel Replacement	5	0-10
32-405-365 Collision Repair and Refinishing Theory 3	3	5-0
31-806-363 Science 1	2	2-2
<b>Semester Total</b>	<b>15</b>	

#### Second Semester

32-405-307 Advanced Collision Structural Repair	5	0-10
32-405-308 Collision Plastics/Composites & Adv Refinish Apps	5	0-10
32-405-334 Collision Damage Analysis and Report Writing	3	5-0
31-405-374 Collision Repair Occupational Orientation	2	4-0
<b>Semester Total</b>	<b>15</b>	

#### Notes:

- Requirements for second-year students: The following courses must be completed prior to entering the second year of the program: 32-405-301, 32-405-302, 32-405-303, 32-405-304, 32-405-340, 32-405-341, 32-405-361 and 32-405-363.
- Third semester students must purchase an approved auto body tool set before third-semester classes begin.

*Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.*



**Program courses (continued)**

**32-405-303 Non-Structural Panel Repair & Glass Servicing 5 credits**  
Further development of straightening skills and sheet metal alignment is achieved by performing these activities on automobiles. Such operations as straightening damages sheet metal on fixed parts and removable panels are performed. Instruction on the replacement of fixed glass such as windshields, rear window, and side glass is covered using industry standards. Further instruction includes the components and procedures involved in the removal and installation of movable glass. Pre-reqs: First semester core courses. Co-reqs: 2nd semester core courses must be taken together (32-405-303; 32-405-304; 32-405-340; 32-405-341; and 32-405-363).

**32-405-304 Refinishing 2/Trim & Hardware 5 credits**  
The refinishing phase includes further instruction in the proper use of the spray gun, performing partial and complete refinishing repairs on vehicles. Procedures for blending and tinting of the paint to achieve an acceptable color match are practices. Shop and paint safety practices are emphasized. Instruction on the safe removal and installation of trim and hardware is covered along with specialty tools necessary to perform operations using industry accepted procedures. Pre-reqs: First semester core courses. Co-reqs: 2nd semester core courses must be taken together (32-405-303; 32-405-304; 32-405-340; 32-405-341; and 32-405-363).

**32-405-305 Auto Refinishing/Color Adjustment 5 credits**  
Vehicle refinishing techniques including preparing adjacent panels for blending, basecoat and clear coat blending, color adjustment and testing color match. Complete refinishing and panel blending is performed on repaired vehicles. Pre-reqs: All first year courses. Co-reqs: Third semester core must be taken together (32-405-305; 32-405-306; and 32-405-365).

**32-405-306 Collision Structural Welding & Panel Replacement 5 credits**  
Structural damage analysis, measuring vehicle dimensions, pulling and straightening vehicle structures. Replacement and alignment of non-structural panels will be performed on vehicles. Collision structural section joints will be constructed and welded (GMAW). Pre-reqs: All first year courses. Co-reqs: Third semester core must be taken together (32-405-305; 32-405-306; and 32-405-365).

**32-405-307 Advanced Collision Structural Repair 5 credits**  
Application of replacement procedures for structural panels such as front and rear rails, rocker panels, A- pillars, B-pillars, and floor pans. Servicing and removal of drive train, suspension steering and other related components utilizing industry accepted procedures. Understanding suspension and wheel alignment angles and diagnostic procedures. Pre-reqs: 1st-3rd semester core courses. Co-reqs: Fourth semester core must be taken together (32-405-307; 32-405-308; 32-405-334; and 32-405-374).

**32-405-308 Collision Plastics/Composites & Adv Refinishing Applications 5 credits**  
Identification of automotive plastics, repair decisions, using adhesives and welding to repair plastics. Refinishing techniques include refinishing plastic, multi-stage finishing, and advances blending techniques and custom painting options. Pre-reqs: 1st-3rd semester core courses. Co-reqs: Fourth semester core must be taken together (32-405-307; 32-405-308; 32-405-334; and 32-405-374).

**32-405-334 Collision Damage Analysis and Report Writing 3 credits**  
This course includes damage analysis, vehicle identification, estimate writing sequence, use of estimation guide for parts and labor costs, and writing damage reports manually and with a computer Each student has the opportunity to estimate damaged vehicles. Pre-reqs: 1st-3rd semester core courses. Co-reqs: Fourth semester core must be taken together (32-405-307; 32-405-308; 32-405-334; and 32-405-374).

**32-405-340 Collision Electrical Fundamentals 2 credits**  
This course is an introduction to automotive electrical systems, including basic electricity, trouble shooting and repair of common electrical circuits, wiring diagrams, soldering, power accessories and restraint systems. Standards for safety when working with electrical systems is emphasized. Pre-reqs: First semester core courses. Co-reqs: 2nd semester core courses must be taken together (32-405-303; 32-405-304; 32-405-340; 32-405-341; and 32-405-363).

**32-405-341 Collision Mechanical Systems 2 credits**  
This course covers basic operations and servicing principles of brake systems, fuel and exhaust systems, heating and cooling systems, suspension and steering systems and automotive air conditioning principles including components that make up an A/C system. Regulations regarding discharging/recharging and trouble shooting as related to collision repair is also included. Safety practices regarding mechanical systems are covered. Pre-reqs: First semester core courses. Co-reqs: 2nd semester core courses must be taken together (32-405-303; 32-405-304; 32-405-340; 32-405-341; and 32-405-363).

**32-405-361 Collision Repair/Refinishing Theory 1 3 credits**  
Covers related information on all phases of auto body welding and metal straightening with hand tools and hydraulic equipment. Collision damage analysis of sheet metal and unibodies is studied. Different types of sheet metal, such as HSS and HSLA, as well as the properties of sheet metal are discussed. Where and how to use plastic filler is presented. Paint equipment such as the operation and maintenance of the spray gun is studied. Extensive discussion takes place on refinish products, surface preparation, sanding and polishing, thinners and reducers and top coat application. Instruction in shop, tool, paint safety, and state and federal environmental concerns and regulations are presented. Co-reqs: First semester core courses must be taken together: Basic Sheet Metal (32-405-301); Refinishing 1 (32-405-302); and Collision Theory 1 (32-405-361).

**32-405-363 Collision Repair/Refinishing Theory 2 3 credits**  
To further promote knowledge of repair skills related to auto collision repair and refinishing, the following discussion areas are included: the evaluation of automobile bodies and damage repair techniques, unibody construction and repair techniques, vehicle preparation, metal correction and parts replacement. Additional instruction includes glass installation, electrical accessories, door and window servicing and trim replacement. Pre-reqs: First semester core courses. Co-reqs: 2nd semester core courses must be taken together (32-405-303; 32-405-304; 32-405-340; 32-405-341; and 32-405-363).

**32-405-365 Collision Repair/Refinishing Theory 3 3 credits**  
Introduces the computer electronic system for repair of unibody vehicles, and proper anchoring and pulling procedures. Instruction on removing and replacing drive train components is included. The proper care and protection of on-board computers in autos is stressed. Sheet metal alignment, and frame and unibody straightening, along with procedures for restoring severely damaged vehicles are studied. Pre-reqs: All first year courses. Co-reqs: Third semester core must be taken together (32-405-305; 32-405-306; and 32-405-365).

**31-405-374 Collision Repair Occupational Orientation 2 credits**  
A study of the operation of all departments of a collision repair center. Special attention is given to the business operations of paper flow, job costing, budget preparation, insurance and AG 132 law. The students receive specific occupational information which enables them to effectively seek employment in the collision repair industry. Personal data sheet, job interviewing techniques, letters of application, seeking references and writing resumes are covered. In addition, personal concerns such as finances, time management, first impressions and evaluating strengths and weaknesses are discussed. Pre-reqs: 1st-3rd semester core courses. Co-reqs: Fourth semester core must be taken together (32-405-307; 32-405-308; 32-405-334; and 32-405-374).

**Career Potential:**

- Auto Body Technician
- Frame and Alignment Specialist
- Unibody Repair Specialist
- Painting Technician

With additional education and/or work experience, graduates may find employment as:

- Insurance Adjuster and Appraiser
- Equipment and Supplies Specialist
- Foreman/Manager/Shop Owner

*More detailed and updated information on this program may be available at: [madisoncollege.org](http://madisoncollege.org). The college reserves the right to make changes in the regulations and courses announced in this publication without notice.*

*Madison Area Technical College provides equal opportunity in education and employment.*

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