

AUTO COLLISION REPAIR

Associate of Applied Science Degree Program Description

Division of Transportation Technology

Scott Community College

Bettendorf, IA 52722

(563) 441-4202

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Program Description

Never before in the history of this nation has the transportation industry played a more vital role in our society. Our entire economic system is dependent upon the well being of the industry. This includes the transportation of consumable merchandise, medical supplies, food, communication systems and commercial goods as well as the family car.

The Auto Collision Repair field has become an increasingly complex industry in recent years. The changing design of the automobile has resulted in an increased application of ultra-sensitive high-strength steel parts and the expanded use of molded composition and plastics for exterior panels. The increased use of sophisticated electronic systems has further mandated that the repair technician be skilled in a variety of areas outside of the actual collision repair phase. Electronics is playing a large role in the function of the vehicle and affects such areas as the brakes, suspension and steering. These areas are frequently damaged in a collision and must be dealt with in the repair of affected vehicles. The repair ethics used in repairing collision-damaged vehicles have far-reaching effects as the legal system has played an expanded role in the negotiation and settling of customer claims and complaints.

Program Accreditation

Scott Community College is accredited by the North Central Association. The Auto Collision Repair Department has been granted ASE/NATEF Master Certification. The curriculum follows the ICAR & ASE/NATEF prescribed guidelines and includes instruction in the following areas;

Painting and Refinishing

Structural Analysis and Damage Repair

Non-Structural Analysis and Damage Repair

Mechanical and Electrical Components

Plastics Repair

Full-Time vs. Part-Time Students

Auto Collision Repair is designed for students who are enrolled full-time and are interested in a career in the Auto Collision Repair industry. Students who are interested in enrolling part-time will be admitted as space permits and with permission of the auto Collision Repair instructors.

Auto collision Repair classes are taught by lecture and demonstration followed by appropriate hands-on laboratory experience.

Description of the Profession

The modern-day Auto collision Repair technician must be versed in a variety of highly specialized repair systems and concepts. The numerous designs of vehicles manufactured with special alloy metals, plastics and other composite materials requires that the technician be able to repair collision-damaged vehicles using highly-sophisticated measuring systems, materials and procedures. They must further be versed in the diagnosis and repair of passive and active restraint systems (air bags), anti-lock brakes, and a variety of other safety systems affected in a collision. Duplicating the glamorous finishes found on these vehicles also requires a keen sense of color and the ability to apply the finishes flawlessly, matching those used by the vehicle manufacturer.

Graduates are typically employed by a variety of firms including independent repair shops, automobile dealerships, fleet companies, manufacturing companies, insurance companies, and wholesale and retail outlets. They are employed in any of the following capacities:

Collision Repair Specialist	Shop Manager
Painter	Shop Owner
Sales Representative	Insurance Adjuster/Appraiser
Technical service Representative	Parts Supply Outlets

Graduates, upon completing additional specialized training or a higher degree, are frequently promoted to supervisory and management positions.

Typical Duties

- Estimate collision-damaged vehicles for repair
- Repair collision-damaged sheet metal, fiberglass, plastic & other composite materials
- Restore damaged undercarriage to manufacturer's specs
- Replace severely damaged parts & panels
- Repaint damaged vehicles
- Diagnose electrical problems & repair
- Align suspension & steering parts
- Perform preventive maintenance
- Replace & service glass and associated parts

Performance Standards

The Automotive Collision Repair Technician must be able to:

- Lift and move various components taken from motor vehicle.
- Move floor jacks, hydraulic lifting & pulling equipment, tool boxes, etc., about the shop.
- Climb up, onto & underneath frame and bench machines.
- Wear respiratory protective gear.

The Automotive Collision Repair Technician must have the ability to:

- Communicate effectively.
- Think Critically.
- Conceptualize the formation of collision damage and formulate a repair plan to restore damaged vehicles.
- Read and interpret various specification manuals.
- Use & interpret various electrical meters and measuring systems.
- Absorb and understand the evolving technology.
- Visualize color and its elements.

Employment Opportunities

Auto collision repair technicians are employed by a wide variety of repair and service-related facilities. They enjoy year-round stable employment, commanding wages comparable to most other automobile and service-related industries. An entry-level technician can expect to earn between \$14,000 - \$16,000 annually, with some experienced technicians earning more than \$50,000 per year.

Job Outlook

According to a national survey conducted by the Inter-industry Conference on Auto Collision Repair (ICAR), the Auto collision Repair industry will need 50,000 entry-level technicians a year. Currently 10,000 people are capable of filling those positions. This leaves a shortfall of 40,000 technicians annually.

Program Faculty

The Auto Collision repair department at Scott Community College employs two full-time instructors.

Roy VenHorst, Diploma in Auto Collision Repair, ICAR & ASE Certified

How to Enroll

A candidate for admission to the Auto Collision Repair Program must:

- Submit the Scott Community College admission application online, in person or by mail.
- Send all High School, College or GED scores to: Student Services, Scott Community College,
500 Road, Bettendorf IA 52722
- Complete the college assessment by making an appointment with the Testing Center, 441-4088.

Illinois residents may register through Blackhawk Community College at their current tuition rate.

Contact Coleman Harris at (309) 796-5179.

Estimated Program Costs

Approximate costs for the entire program are:

In-State Tuition & Fees:	\$7840.00 (Fall 2009)
Out-of-State Tuition & Fees:	\$11,760.00 (Fall 2009)
Books and Supplies	\$450.00
Tools:	\$2,500.00**

*Tuition does not include the cost of developmental course-work (if necessary.)

**Tools from the following list will cost from \$2,000 to \$2,500 depending on the vendor you choose. Toolboxes also vary in price from \$700 to \$1,400.

Tools

Students are responsible for having their own tools. The minimum tools needed for completion of this program are listed below.

SCC Auto Collision Repair Tool List Rev 7-07

- AIR CHUCK 1/4 IN FPT
- 39 PC GEARDRIVER RATCH SCR
- 11 IN ALUMINUM ABRAS. HOL
- 1/4 IN NPTM COUPLER PLUG
- 1/4 X 5 IN 60 TOOTH RATCH
- 41PC SIL FAG SOCK BIT DRVR
- 10 IN ROUND BODY FILE
- 3/8-8(60 TOOTH) RAC
- 32 OZ HAMMER
- LIGHT DINGING SPOON
- TOE DOLLY
- HEEL DOLLY
- GEN. PURPOSE DOLLY
- FILE HOLDER F/14 W/O BODY
- GEN PURP PICK HAMMER
- FINISHING HAMMER
- CROSS PEEN FINISHING HAMMER
- 1/2 IN X 24 IN FLEX HANDLE
- 1/2-15 (60TH) RATCHET
- DRILL SET
- 5 PC UPHOLSTERY TRIM TOOL
- DOOR HANDLE & WINDOW
- 3/8 IN DBL BX PRO-SWING
- 7/16 IN DBL BX PRO-SWING
- 1/2 IN DBL BX PRO-SWING
- 9/16 IN DBL BX PRO-SWING
- 10MM DBL BX PRO-SWING
- 11MM DBL BX PRO-SWING
- 12MM DBL BX PRO-SWING
- 13MM DBL BX PRO-SWING
- HEARING PROTECTOR/SAFETY
- 12 IN HIGH TENSION HACK SAW
- 10 IN MILL BASTARD FILE
- 12PC PUNCH & CHISEL SET
- UTILITY KNIFE
- 2 IN BOLSTER HANDLE SCRAPPER
- 10 IN ROUND BAST FILE
- LADY FOOT PRY BAR
- 3/4" X 16' METRIC TAPE
- 1/4 IN DR 10 PC SOCKET SET
- 1/4 10-PC DP 6PT SKT SET
- 1/4 IN DR 14 PC 6PT SKT SET
- 14PC 1/4 DP MM SKT ST 6PT
- 3/8 IN DR 43 PC SET IMP SKT
- 3/8 13-PC DP 6PT SAE SKT SET
- 1 IN X3-3/4 IN SCRAPER
- 1/2 IN 30 PC SE IMP SKT SE
- 1/2 IN 13 PC DP SE IMP SKT
- 12PC LG MOD COMB WRENCH SE
- 12PC LG MM MOD COMB WRENCH
- SCRATCH AWL
- 4 PC UNIVERSAL PLIERS SET
- FS100 & F5102 COMBO SET
- 9 IN VINYL SANDING BLK
- 12 IN ADJUSTABLE WRENCH
- 7 BIT TORX J-KEY SET - GRE
- 41PC SOCK BIT DRVR
- 5 IN HIGH SPEED SANDER
- 3/8" REVERSIBLE AIR DRILL
- 6" DUAL ACTION SANDER
- 3" CUT OFF TOOL
- AIR HAMMER KI
- 5PC LONG MOD COMBO WRENCH S
- TIRE GAUGE (20-120) PSI
- UNIV ROUND FILE LIGHTER
- LEFT CUT AVIATION SNIP
- RIGHT CUT AVIATION SNIP
- 14 IN BODY FILE
- 4" FULL FLOW NOZZLE BLOWGU
- 6 IN V-GRIP C-CLAMP W/REG
- WELDING CLAMP
- SHOE HANDLE SCRATCH BRUSH
- LONG PICK
- SHORT PICK
- SPOON DOLLY
- 1/4 X 2 EXTENSION
- 1/4 X 6 EXTENSION
- 1/4 X 10 EXTENSION
- SHEET METAL TOOL 23EL5
- 9 PC STD J-KEY SET-ORANGE
- ANTENNA BEZEL NUT WRENCH
- WINDSHIELD MOLD RE. TOOL
- 5 IN BLACK RUBBER SANDING

Uniforms

Uniforms are not required but each student must have safety glasses and leather work shoes. Open-toed footwear and shorts are not allowed in laboratory areas.

Financial Aid/Scholarships

Financial Aid is available through a variety of grants and scholarships offered by the foundation and through local lending institutions. It is advisable to submit a financial Aid form as early as possible. See Financial Aid advisers for specifics.

Student Organizations

The Auto Collision Repair Club offers many worthwhile activities each year including a field trips each year to the Chicago Auto Show. Each year the top students compete in the annual SkillsUSA State Skills Competition. Winners of the competition have the opportunity to compete in the national Skills Competition.

Articulation

The Scott Community College Auto Collision Repair program does not have articulation agreements with any local high schools at this time.

Auto Collision Repair Course Sequence

Scott Community College (Diploma, AAS)

Automotive Collision Repair Technology Program Course Sequence; Fall Start

REV 9-09

	Course Title	Cr. Hours
First Semester - Fall		
CRR 140	Orientation and Safety	3
CRR 322	Basic Metal Bumping and Repair	5
CRR 801	Refinishing I	3
CRR 452	Trim and Component Panel Services	2
CRR 113	Welding Survey	2
COM 102	Communication Skills OR	3
ENG 105	Composition I	3
	Semester Total	18
Second Semester - Spring		
CRR 405	Non-Structural Panel Repair and Replacement	5
CRR 114	Welding Systems and Techniques	2
CRR 825	Refinishing Principles	5
CRR 799	Spray Techniques & Surface Coatings II	1
CRR 200	Plastic Repair	1
MAT 104	Applied Math Topics OR	3
MAT 110	Math for Liberal Arts	3
	Semester Total	17

Summer Session

CRR	842	Color-Matching	5
Session Total			5
			Diploma Awarded 40

Third Semester - Fall

CRR	507	Structural Panel Repair and Replacement	5
CRR	612	Steering/Suspension	3
CRR	878	Advanced Refinishing Techniques	2
CRR	115	Advanced Welding Techniques	1
BCA	188	Business Computer Apps OR	3
BUS	102	Intro to Business	
PSY	213	Industrial & Organizational Psychology OR	3
HUM	105	Working in America	
Semester Total			17

Fourth Semester - Spring

CRR	674	Electrical Service	4
CRR	743	Estimating and Shop Management	3
CRR	605	Mechanical Service	3
CRR	908	Cooperative/Internship	3
Semester Total			13
Associate in Applied Science Awarded			70

Optional Course

CRR	370	Collision Lab	variable
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**CRR370 is not a requirement. It is only required in the event of an incomplete in any of the lab courses.

Automotive Collision Repair Technology Program Course Sequence; Spring Start**First Semester - Spring**

			Cr. Hours
CRR	674	Electrical Service	4
CRR	743	Estimating and Shop Management	3
CRR	605	Mechanical Service	3
CRR	140	Orientation and Safety	3
CRR	452	Trim and Component Panel Services	2
Semester Total			15

Summer Session 1

CRR	113	Welding Survey	2
CRR	322	Basic Metal Bumping and Repair	5
Session Total			7

Second Semester - Fall

CRR	507	Structural Panel Repair and Replacement	5
CRR	612	Steering/Suspension	3
CRR	801	Refinishing I	3
CRR	115	Advanced Welding Techniques	1
BCA	188	Business Computer Apps OR	3
BUS	102	Intro to Business	
Semester Total			15

Third Semester - Spring

CRR	405	Non-Structural Panel Repair and Replacement	5
CRR	114	Welding Systems and Techniques	2
CRR	825	Refinishing Principles	5
CRR	799	Spray Techniques & Surface Coatings II	1
CRR	200	Plastic Repair	1
MAT	104	Applied Math Topics OR	3
MAT	110	Math for Liberal Arts	3
Semester Total			17

Summer Session 2

CRR	842	Color-Matching	5
Session Total			5

Fourth Semester - Fall

CRR	878	Advanced Refinishing Techniques	2
CRR	908	Cooperative/Internship	3
PSY	213	Industrial & Organizational Psychology OR	3
HUM	105	Working in America	3
CRR	370	Collision Lab	variable
COM	102	Communication Skills OR	3
ENG	105	Composition I	3
Semester Total			11

Associate in Applied Science Awarded 70

**CRR370 is not a requirement. It is only required in the event of an incomplete in any of the lab courses.

Auto Collision Repair Courses

CRR140 Orientation and Safety 3 cr.

This course is an orientation to the college and departmental activities, functions and regulations and an overall safety program. It covers all areas of shop and tool safety and includes topics pertinent to the ACR industry regarding employee and community right to know and the laws and regulations governing the handling of hazardous materials. (59.4 Lec. Hrs.)

CRR322 Basic Metal Bumping and Repair 5 cr.

This course is designed to acquaint the student with the tools, equipment and techniques utilized for repairing minor collision damage. Emphasis will be placed on damage identification and analysis and formulating an appropriate repair plan. (59.4 Lec. Hrs./118.8 Lab Hrs.)

Co-requisites: CRR140 and CRR113

CRR801 Refinishing I 3 cr.

This is an introductory course designed to acquaint the student with all phases of surface removal and the preparation required for application of fillers, paint and primer coatings. Proper substrate preparation and basecoat application will be emphasized. Other topics will include pre-cleaning, surface removal, abrasives fillers, basecoat selection, masking and proper spray application. (19.8 Lec. Hrs./118.8 Lab Hrs.)

Co-requisite: CRR140

CRR452 Trim and Component Panel Service 2 cr.

This course will address all facets of the final detailing of the interior and exterior trim and accessories as required for vehicle's pre-delivery prep. It also includes servicing all door and window mechanisms, removal and replacement of all interior and exterior trim components, and adjusting all exterior component panels. (19.8 Lec. Hrs./59.4 Lab Hrs.)

Co-requisite: CRR140

CRR405 Non-Structural Panel Repair and Replacement 5 cr.

This course will provide training in the repair and replacement of metallic and composite non-structural component and stationary parts. Topics covered in the course include pre-replacement roughing and aligning, force application analysis, glass service and replacement and the alignment of all adjustable panels. (59.4 Lec. Hrs./118.8 Lab Hrs.)

Pre-requisite: CRR322 and CRR113

CRR825 Refinishing Principles 5 cr.

This course will prepare the student to select and apply basecoats and topcoats that are compatible with the existing finish and substrates. Topics covered will include methods used to identify existing finishes, selecting and applying the proper basecoats, top coats, solvent and additive selection and maintenance on all air supply and spray equipment. VOC tracking regulations and applications will also be introduced. (59.4 Lec. Hrs./118.8 Lab Hrs.)

Prerequisite: CRR801

CRR200 Plastic Repair 1 cr.

This course is designed to acquaint the student with the methods and techniques used to identify and repair plastics commonly used on the modern day automobiles. Major topics of instruction include welding and adhesive repairs and panel replacements made on plastics, composites and fiberglass. Pre-paint cleaning and prep will also be emphasized. (59.4 Lab Hrs.)

Prerequisite: CRR113

Co-requisite: CRR140

CRR799 Spray Techniques and Surface Coatings II 1 cr.

This course is designed for the experienced painters seeking to upgrade their skills and become more proficient with the mechanics of the spray gun and application techniques. The course will provide the student with a more in-depth analysis of the principles and concepts utilized for applying various automotive, commercial and industrial surface coatings using both the virtual painting system and conventional spray painting equipment. Emphasis will be placed on proper equipment selection, setup, manipulation and maintenance. (39.6 Lab Hrs.)

CRR842 Color Matching Concepts 5 cr.

This course is an in-depth study of color and its make-up and the proper techniques utilized for tinting and shading paint to accomplish a color match on a vehicle. Spot repairing and blending techniques to obtain a color match on direct gloss and two stage finishes will also be included. (39.6 Lec. Hrs./178.2 Lab Hrs.)

Prerequisite: CRR825

CRR507 Structural Panel Repair and Replacement 5 cr.

This course is designed to provide the student with the skills necessary to repair the undercarriage on severely damaged vehicles. It will include an in-depth study of measuring and tracking systems commonly used to analyze, isolate and repair damage on the undercarriage and other structural parts of collision damaged vehicles. Replacement and corrosion protection of said parts will also be included as part of the repairs. (59.4 Lec. Hrs./118.8 Lab Hrs.)

CRR612 Steering/Suspensions 3 cr.

This course is designed to acquaint the student with the suspension and steering systems, and how they are affected by a collision. It will include instruction in the diagnosis and repair of problems affecting the drivability of a vehicle after it has been involved in a collision. It also includes a study of the steering geometry, alignment principles, tracking and replacement procedures for damaged components. The interrelation of each part to the overall handling of the vehicle are all included. (39.6 Lec. Hrs./59.4 Lab Hrs.)

CRR674 Electrical Service 4 cr.

This course will acquaint the student with the methods utilized to diagnose and troubleshoot electrical problems which affect the operation of various electrically integrated parts of the vehicle. It will include energy production, electrical theory, interpreting wiring diagrams, electrical measuring and testing equipment as they are used in the repair of damaged passive & active restraint systems, air bags, anti-lock braking systems and other electrical problems which typically occur as a result of a collision. (59.4 Lec. Hrs./59.4 Lab Hrs.)

CRR743 Estimating and Shop Management 3 cr.

This course is designed to acquaint the student with the methods and techniques used to analyze and identify the damage sustained by a vehicle involved in a collision. It will also include an in-depth study of the collision and specification manuals typically used in writing an automobile damage report. A survey of the day to day activities performed by shop personnel such as scheduling, customer relations and inventory control will also be included. (59.4 Lec. Hrs.)

Co-requisites: Math Elective

CRR878 Advanced Refinishing Techniques 2 cr.

This is the last in a series of refinishing courses which is designed to acquaint the student with diagnosing and repairing various paint problems and failures and repairing them using a systems approach. An in-depth study and comparative analysis will be conducted of various paint manufacturers products and how they are to be used in resolving the various paint failures. This will be accomplished with both solvent and water borne materials. An analysis of the Volatile Organic Compound (VOC) levels will be completed for each of the products used. The Spray Techniques and Analysis Research (STAR) training process will also be administered to the students. (19.8 Lec. Hrs./59.4 Lab Hrs.)

Prerequisites: ACR:140

CRR605 Mechanical Service 3 cr.

This course is designed to help the student identify and repair the mechanical problems and failures that typically occur as a result of an automobile accident. The course will include diagnosing and repairing problems with the brake system, drive train, exhaust system and other mechanical components typically damaged in a collision situation. The course will also include instruction diagnosing and repairing problems with the vehicles A/C cooling system and the regulations governing the handling and use CFC of gases. (19.8 Lec. Hrs./118.8 Lab Hrs.)

CRR370 Open Lab Elective Variable Cr.

This lab course will give the student an opportunity to complete any unfinished requirements they did not complete in any one of the courses for which they had registered. The student may enroll for this course more than one time. (Variable Lab Hrs.)

CRR113 Welding Survey 2 cr.

This course is designed to acquaint the student with the fundamentals of MIG and Oxy-acetylene welding as it pertains to the Auto Collision Repair industry. Instruction will be given in equipment, setup, safety & application in the Oxy-acetylene & MIG processes - safety will be emphasized. The lab will be correlated with the lecture to provide the student with practical hands-on experience. (19.8 Lec. Hrs./59.4 Lab Hrs.)

CRR114 Welding Systems and Techniques 2 cr.

This course is designed to increase the students' proficiency with the basic welding concepts and to further their knowledge and skills of other welding processes used in Auto Collision Repair. Topics covered include resistance and spot stitch welding, aluminum and flux core welding, TIG welding, plasma cutting and the equipment used for these operations. (19.8 Lec. Hrs./59.4 Lab Hrs.)

Pre-requisite: Weld: 151

CRR115 Advanced Welding 1 cr.

This is a lab course designed to enhance the students' skills with all the welding concepts typically used in the Collision Repair Industry. It will include all welding processes used on steel, aluminum, and other metallic parts typically encountered on the automobile. Joint design and fabrication will be covered to prepare the student for applicable certification tests. (59.4 Lab. Hrs.)

Pre-requisite: Weld:161

CRR908 Cooperative Work Experience 3 cr.

Cooperative Education Experience will integrate classroom theory with on-the-job training. The College will assist the student in securing employment which will be related to the student's major field of study and/or career interests. Under the supervision of the College and the employer, the student participates in job training experiences. In addition to employment, attendance at scheduled on-campus seminars is required. Seminars may include job searching skills as well as professional development. Student eligibility consists of the successful completion of 12 credit hours with EICCD with at least two courses in the chosen major and maintenance of a grade point average of 2.25 or higher.

(Variable Coop Hrs.)

Prerequisite: Consent of instructor.