

Area: Technical Education  
 Dean: Dr. Trish Caldwell  
 Phone: (916) 484-8354  
 Counseling: (916) 484-8572

Degree: A.S. - Automotive Collision Technology  
 Certificate: Automotive Collision Technology  
 Department Certificates:  
 Automotive Claims Estimator  
 Automotive Collision Technology - Non-Structural  
 Automotive Collision Technology - Refinish  
 Automotive Collision Technology - Structural

<http://wserver.arc.losrios.edu/~tech/>

## Automotive Collision Technology Degree and Certificate

Major Code, degree: 011038A01

Major Code, certificate: 011038C01

This degree or certificate provides an extended combination of classroom and hands-on shop experience to prepare for careers in all phases of automotive collision technology. Topics include component repairs, structural and non-structural repairs and refinishing. It also covers various automotive systems, such as heating and air-conditioning, suspension steering, and electrical.

### Student Learning Outcomes

*Upon completion of this program, the student will be able to:*

- identify and estimate automotive collision damage.
- develop a repair plan.
- repair automotive collision mechanical damage.
- repair frame/unibody automotive collision structural damage.
- repair automotive collision body damage.
- refinish automotive collision damage.

### Career Opportunities

This program provides training and hands-on experience in high-demand skills that lead to promising careers with high wages. Students who have successfully completed this program are working as non-structural, structural, refinish and estimating technicians. The U.S. Labor Department reports that job opportunities for auto collision specialists are excellent because of the large number of older workers who are expected to retire in the next 5 to 10 years. In addition, it points out that experienced technicians are rarely laid off and that employers prefer to hire graduates of a formal training program for which provides a foundation in the latest collision technology, including the techniques and equipment used on the job.

See [losrios.edu/gainful-emp-info/gedt.php?major=011038C01](http://losrios.edu/gainful-emp-info/gedt.php?major=011038C01) for Gainful Employment Disclosure.

Requirements for Degree or Certificate	56 Units
ACT 100 Automotive Collision Basics.....	4
ACT 110 Component Repairs.....	4
ACT 120 Non-Structural Repair .....	4
ACT 130 Structural Repair.....	4
ACT 131 Automotive Collision Welding.....	4
ACT 140 Automotive Refinishing.....	4
ACT 161 Automotive Collision Software Systems, Estimating I.....	4
AT 100 Technical Basics for the Automotive Professional .....	4
AT 105 Mathematics for Automotive Technology.....	3
AT 180 Automotive Data Acquisition .....	3
AT 310 Heating and Air-Conditioning Systems.....	4
AT 311 Suspension and Steering Systems.....	4
AT 330 Automotive Electrical Systems.....	6

A minimum of 4 units from the following:..... 4  
 ACT 298 Work Experience in Collision Technology (1 - 4)

**Associate Degree Requirements:** The Automotive Collision Technology Associate in Science (A.S.) Degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See ARC graduation requirements.

## DEPARTMENT CERTIFICATES

### Automotive Claims Estimator Certificate

This program provides the technical and practical skills necessary to properly diagnose collision-damaged vehicles and to document the cost and time necessary to repair collision-damaged vehicles. The use of state-of-the-art, computer-generated estimating programs and video imaging are used to prepare itemized estimates on collision-damaged vehicles. The procedures to prepare itemized estimates detailing the required procedures and parts necessary to correctly repair the vehicle are also covered.

### Student Learning Outcomes

*Upon completion of this program, the student will be able to:*

- complete an accurate repair estimate
- apply technical skills necessary to remove, replace and align damaged cosmetic and mechanical related components
- recognize and identify direct, indirect and secondary damage on collision-damaged vehicles
- create a marketing plan for a small business utilizing appropriate data
- analyze the four functions of management: planning, organizing, directing, and evaluating
- demonstrate methods for building effective customer service teams
- create and edit documents using appropriate word processing functions

### Career Opportunities

This program provides training and hands-on experience in high-demand skills that lead to promising careers with high wages. The U.S. Labor Department reports that job opportunities for auto collision specialists are excellent because of the large number of older workers who are expected to retire in the next 5 to 10 years. In addition, it points out that experienced technicians are rarely laid off and that employers prefer to hire graduates of a formal training program because it provides a foundation in the latest collision technology, including the techniques and equipment used on the job.

See [losrios.edu/gainful-emp-info/gedt.php?major=011513C01](http://losrios.edu/gainful-emp-info/gedt.php?major=011513C01) for Gainful Employment Disclosure.

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**(Automotive Claims Estimator Department Certificate continued)**

Requirements for Certificate		16 Units
ACT 110	Component Repairs.....	4
ACT 120	Non-Structural Repair .....	4
ACT 161	Automotive Collision Software Systems, Estimating I.....	4
BUS 212	Marketing for Small Businesses.....	1
BUS 218	Management Skills for the Small Business.....	1
BUS 224	Customer Service.....	1
BUSTEC 300.1	Keyboarding/Applications: Beginning.....	1 <sup>1</sup>

<sup>1</sup>Keyboard proficiency test. This program can be completed in 15 units if student passes keyboarding test.

**Automotive Collision Technology – Non-Structural Certificate**

This certificate provides a combination of classroom and hands-on experience to prepare for careers in non-structural automotive collision technology. Topics include automotive collision basic, component and non-structural repairs. This certificate is intended for students who have completed the Automotive Collision Technology Certificate and need to obtain a higher skill level to obtain higher I-CAR pro levels.

**Student Learning Outcomes**

*Upon completion of this program, the student will be able to:*

- identify collision damage
- repair vehicle sheet steel
- determine repair or replace based on I-CAR/ASE criteria
- repair hybrid vehicles to meet legal safety standards

**Career Opportunities**

This program provides training and hands-on experience in high-demand skills that lead to promising career with high wages. Students who have successfully completed this program are working as body repair technicians. The U.S. Labor Department reports that job opportunity for auto collision specialists are excellent because of large number of older workers who are expected to retire in the next 4 to 10 years. In addition, it points out that experienced technicians are rarely laid off and employers prefer to hire graduates of a formal training program because it provides a foundation in the latest collision technology, including the techniques and equipment used on the job.

Requirements for Certificate		12 Units
ACT 100	Automotive Collision Basics.....	4
ACT 110	Component Repairs.....	4
ACT 120	Non-Structural Repair .....	4

**Automotive Collision Technology – Refinish Certificate**

This program provides a combination of classroom and hands-on shop experience to prepare for a career in automotive collision technology refinishing. Topics include component repair, non-structural repairs and, refinishing. This certificate is intended for students who are interested in exploring the field of Automotive Collision Refinish.

**Student Learning Outcomes**

*Upon completion of this program, the student will be able to:*

- identify color matching and solutions
- apply color blending procedures including application

- apply paint material with proficiency
- polish repaired surface to factory finish
- prepare surface in all application phases
- remove and install adjacent parts for quality refinish preparation

**Career Opportunities**

This program provides training and hands-on experience in high-demand skills that lead to promising careers with high wages. Students who have successfully completed this program are qualified candidates for refinish apprenticeships. The U.S. Labor Department reports that job opportunities for auto collision specialists are excellent because of the large number of older workers who are expected to retire in the next 5 to 10 years. In addition, it points out that experienced technicians are rarely laid off and that employers prefer to hire graduates or a formal training program because it provides a foundation in the latest collision technology, including the techniques and equipment used on the job.

Requirements for Certificate		12 Units
ACT 110	Component Repairs.....	4
ACT 120	Non-Structural Repair .....	4
ACT 140	Automotive Refinishing.....	4

**Automotive Collision Technology – Structural Certificate**

This program provides a combination of classroom and hands-on shop experience to prepare for a career in automotive collision structural repairs. This certificate is intended for students who have completed the Automotive Collision Technology Certificate and need to obtain a higher skill level in the field.

**Student Learning Outcomes**

*Upon completion of this program, the student will be able to:*

- identify structural damage
- mount and measure vehicles
- pull and square damaged structural areas
- perform collision related welding of sheet steel
- remove and install components

**Career Opportunities**

This program provides training and hands-on experience in high-demand skills that lead to promising careers with high wages. Students who have successfully completed this program are working as frame/uni-body technicians. The U.S. Labor Department reports that job opportunity for auto collision specialists are excellent because of the large number of older workers who are expected to retire in the next 5 to 10 years. In addition, it points out that experienced technicians are rarely laid off and that employers prefer to hire graduates of a formal training program because it provides a foundation in latest collision technology, including the techniques and equipment used on the job.

Requirements for Certificate		12 Units
ACT 110	Component Repairs.....	4
ACT 130	Structural Repair.....	4
ACT 131	Automotive Collision Welding.....	4

## Automotive Collision Technology

### ACT 100 Automotive Collision Basics 4 Units

Hours: 54 hours LEC; 54 hours LAB

This course covers the basics of automotive collision repair of traditional, electric, and electric hybrid vehicles. Topics include use and disposal of hazardous materials; lighting, starting, and charging systems; and appropriate use and maintenance of tools and equipment.

### ACT 110 Component Repairs 4 Units

*Prerequisite:* ACT 100 with a grade of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course provides the technical principals and theories to perform limited and supervised repairs to collision-damaged vehicles. It covers how to safely remove, inspect, replace, and align bolt-on body components per vehicle manufacturers' specifications. It covers protection of mechanical and electrical systems, removal of damaged parts, removal and re-installation of movable glass, diagnosis of wind noise and water leaks, and techniques applicable to damaged vehicles. Students enrolled in the Collision Technology program at American River College (ARC) may be eligible to apply for Inter-Industry Conference on Automotive Collision Repairs (I-CAR) points and I-CAR certifications. This ARC-ACT/I-CAR alliance course also prepares students for Automotive Service Excellence (ASE) testing and National Automotive Technicians Education Foundation (NATEF) training standards.

### ACT 120 Non-Structural Repair 4 Units

*Prerequisite:* ACT 100 with a grade of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course provides the technical principles and theories to perform limited and supervised repairs to collision-damaged vehicles. It covers the fundamentals and theory of automotive collision repair procedures including composite repairs and replacements. Foam application techniques pertaining to noise reduction and structural strength are implemented. Additionally, metal straightening theory and techniques for steel and aluminum repairs, and the decision to make repairs vs. replacement are included. Students enrolled in the Collision Technology program at American River College (ARC) may be eligible to apply for Inter-Industry Conference on Automotive Collision Repair (I-CAR) points and I-CAR industry certifications. This ARC-ACT/I-CAR alliance course also prepares students for Automotive Service Excellence (ASE) testing, and National Automotive Technicians Educational Foundation (NATEF) training standards.

### ACT 130 Structural Repair 4 Units

*Prerequisite:* ACT 100 and 131 with grades of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course covers principles and theories of automotive collision repair, including component alignment, component replacement, structural panel repair or replacement, corrosion protection, and chassis/frame alignment. Sectioning and full-panel replacement techniques and procedures are covered, including welding and self-piercing rivet adhesive bonding. Required corrosion protection techniques are applied. Students enrolled in the Collision Technology program at American River College (ARC) may be eligible to apply for Inter-Industry Conference on Automotive Collision Repair (I-CAR) points and I-CAR industry certifications. This ARC-ACT/I-CAR alliance course also prepares students for Automotive Service Excellence (ASE) testing, and National Automotive Technicians Education Foundation (NATEF) training standards.

### ACT 131 Automotive Collision Welding 4 Units

Hours: 54 hours LEC; 54 hours LAB

This course covers the various processes of welding in automotive collision repairs using metal inert gas (MIG) and tungsten inert gas (TIG). Topics include preparation, welding, and finishing.

### ACT 140 Automotive Refinishing 4 Units

*Prerequisite:* ACT 100 and 120 with grades of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course covers the principles and theories of paint finish application, tinting, color evaluation, and color adjustments. Topics include paint application techniques, new and emerging paint technologies, color identification, and interpreting vehicle color codes. This course also addresses multiple compliances with regulations as determined by the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), the Clean Air Act, and the Sacramento Municipal Air Quality Air Management District (SMAQMD) pertaining to Volatile Organic Compounds (VOC's). Students enrolled in the Automotive Collision Technology (ACT) program at American River College (ARC) may be eligible to apply for Inter-Industry Conference on Automotive Collision Repair (I-CAR) points and I-CAR industry certifications. This ARC-ACT/I-CAR alliance course also prepares students for Automotive Service Excellence (ASE) testing and National Automotive Technicians Education Foundation (NATEF) training standards.

### ACT 150 Advanced Collision Frame & Unibody 4 Units

*Prerequisite:* ACT 110, 120, 130, and 140 with grades of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course covers the principles and theories of advanced chassis design, development, and construction. Extensive bracket and frame fabrication and welding are emphasized.

### ACT 152 Advanced Collision Suspensions 4 Units

*Prerequisite:* ACT 110, 120, 130, and 140 with grades of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course covers the principles and theories of advanced suspension design, development, and construction. Topics include big brakes and air suspensions.

### ACT 154 Advanced Collision Drivetrain 4 Units

*Prerequisite:* ACT 110, 120, 130, and 140 with grades of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course covers the principles and theories of advanced engines and transmissions. Topics include engine performance tuning and transmission selection.

### ACT 156 Advanced Collision Refinish 4 Units

*Prerequisite:* ACT 110, 120, 130, and 140 with grades of "C" or better

Hours: 54 hours LEC; 54 hours LAB

This course covers the principles and theories of advanced custom show-quality automotive finishes. Topics include primers, color coats, special effects, clear coats, and polishing.

### ACT 161 Automotive Collision Software Systems, Estimating I 4 Units

Hours: 54 hours LEC; 54 hours LAB

This course provides the technical and practical skills necessary to properly diagnose collision-damaged vehicles and to document the cost and time necessary to repair collision-damaged vehicles. The use of state-of-the-art computer generated estimating programs and video imaging are used to prepare itemized estimates on collision-damaged vehicles. The procedures to prepare itemized estimates detailing the required procedures and parts necessary to correctly repair the vehicle are also covered.

**ACT 298 Work Experience in Collision Technology 1-4 Units**

Advisory: Eligible for ENGRD 310 or ENGRD 312 AND ENGRD 300; OR ESLR 340 AND ESLW 340.

*Enrollment Limitation: Students must be in a paid or unpaid internship, volunteer position, or job related to the automotive collision field with a cooperating site supervisor. Students are advised to consult with the Automotive Collision Department faculty to review specific certificate and degree work experience requirements.*

*General Education: AA/AS Area III(b)*

Hours: 60-300 hours LAB

This course provides students with opportunities to develop marketable skills in preparation for employment or advancement within the automotive collision field. It is designed for students interested in work experience and/or internships in associate degree level or certificate occupational programs. Course content includes understanding the application of education to the workforce, completion of Title 5 required forms which document the student's progress and hours spent at the work site, and developing workplace skills and competencies. During the semester, the student is required to attend a weekly orientation and 75 hours of related paid work experience, or 60 hours of unpaid work experience for one unit. An additional 75 or 60 hours of related work experience is required for each additional unit. First-time participants are required to attend a weekly orientation and a final meeting. Returning participants are required to attend the first class meeting, a mid-semester meeting, and a final meeting and may meet individually with the instructor as needed to complete a work site observation and all program forms, receive updates, and assignments. Students may take up to 16 units total across all Work Experience course offerings. This course may be taken up to four times when there are new or expanded learning objectives. Only one Work Experience course may be taken per semester.