Automotive Collision Repair and Painting
Program Review - 2011

I. Overview of the Program/Department

A. The Automotive Collision Repair and Painting (ACR/P) program prepares students for employment in the field and provides employment upgrade opportunities for currently employed personnel. By completing the degree requirements, students will gain proficiency in industry repair standards, vehicle identification and construction, damage estimating, body repairs, frame repairs, vehicle alignment, welding and vehicle painting. In addition, completing the ACR/P certificate requirements prepares students for employment in the fields of automotive insurance investigation, vehicle accident reconstruction, automotive collision repair or automotive refinishing.

ACR/P is a single full-time instructor department. The previous full-time instructor retired in 2010 and his replacement has no personal knowledge of data or department practices for years prior to 2009. Multiple changes in part-time staffing have also occurred in the past 3 years as the department attempted to assemble the high-quality team of instructors it has today.

B. The ACR/P program offers one A.S. degree (60 total units including 20 units of collision repair and 40 units of general education), two certificates of achievement (32-40 units of collision repair) and two certificates of accomplishment (6 units of insurance investigation or 6 units of accident reconstruction).

C. In the previous ACR/P Program Review (2008), recommendations were made to reinstate the afternoon paint classes (2A, 2B, 2C, 3A) and to hire a full-time tool room attendant. Neither request has been granted. The 2012-13 Program Plan shows the continued request to reinstate the paint classes, and the request to hire a full-time tool room attendant has been eliminated.

II. Analysis of Institutional Research Data

A1. Grade Distribution, Success and Retention Rates

The department's success and retention rates have improved significantly between 2005 and 2010. Most students pass their ACR/P classes with a C or better, but the department still ranks below the division, college and state averages for success. The department ranks closer to the division and college for completion rates. Success rates are consistently higher in the spring than fall, suggesting perhaps that incoming high school graduates 'catch on' to college curriculum in the fall and are ready to succeed in the spring. The department still has problems with non-career-minded students who care more about working on cars than the grade they earn, but class policies are being adjusted to better integrate hands-on work and graded class assignments.

Grade Distribution (Percentage)

Term	A	B	C	D	F	W and DR
Fall 2006	21.5	27.7	16.9	6.2	12.3	15.4
Fall 2007	20.0	28.6	18.6	5.7	7.1	20.0
Fall 2008	24.0	25.3	12.0	6.7	14.7	17.3
Fall 2009	27.7	23.2	9.8	5.4	18.8	15.2
Spr 2010	27.2	22.2	15.6	8.9	13.6	12.5
Average	**24.1**	**25.4**	**14.6**	**6.6**	**13.3**	**16.1**

Success and Completion Rates

Term	% Completion	State Average	% Success	State Average
Fall 2005	79.7	88.41	48.1	76.5
Spring 2006	78.5	n/a	60	n/a
Fall 2006	84.6	88.2	66.2	74.39
Spring 2007	81	n/a	77.6	n/a
Fall 2007	80	89.08	67.1	77
Spring 2008	83.5	n/a	74.7	n/a
Fall 2008	82.7	89.89	61.3	77.02
Spring 2009	89.8	n/a	70.5	n/a
Fall 2009	84.8	n/a	60.7	n/a
Spring 2010	86.7	n/a	62.8	n/a
Fall 2010	83.2	n/a	72	n/a
Six-Year Average	**83.1**	**88.9**	**65.5**	**76.22**

A2-3. Enrollment& Scheduling

Enrollment has been strong the past few years and course fill rates have improved 17.6% between 2006 and 2009. The department averages 10 courses per year with an average total seat count of 192.5. The male-to-female student ratio in ACR/P has improved, and the department intends to continue the trend.

Currently, more students enroll in daytime classes than evening, but the gap is narrowing. All courses in ACR/P are offered Monday-Thursday in either the early morning (7:00am-12:40pm) or the evening (5:30-10pm), leaving an awkward gap in the day for the growing number of students enrolling in both day and night classes. There are currently no Friday or weekend classes.

Enrollment

	Fall 2006	Fall 2007	Fall 2008	Fall 2009
Fill Rate	69.90%	75.30%	80.60%	87.50%
Unduplicated Students	103	125	130	169
Enrollment (ECC Research)	57	66	70	102
Male	55	60	62	90
Female	2	6	8	12
Male to Female Ratio	27.5 to 1	10 to 1	7.75 to 1	7.5 to 1
Full-Time	14	16	22	29
Part-Time	43	50	48	73

Scheduling

	Fall 2006	Fall 2007	Fall 2008	Fall 2009
Enrollment (ECC Research)	57	66	70	102
Daytime Classes	35	43	44	58
Evening Classes	22	23	26	44

B. Recommendations

The department has already begun to boost its reputation for quality through updated curriculum, participation in campus events (Career and Majors Fair, New Student Welcome Day, WIT Wednesdays, Girls in the Garage), and industry outreach (advisory board meetings, vendor meetings, CWEE partnerships). ACR/P faculty needs to boost these efforts with larger scale funded activities and strategies. Faculty also needs to monitor student progress and be mindful of success and retention rate goals.

Although the ratio of male to female ACR/P students is improving, more effort to recruit females needs to be made. ACR/P's target is 33% female to 67% male. All-female automotive activities, partnership with the ECC Women in Technology program and other promotional campaigns have begun and have started to show results (3.5% female in 2006 vs. 11.8% in 2009).

III. Curriculum

All courses were updated in 2010 to comply with the mandatory Title V six-year review cycle. No courses were added or deleted at that time. Articulation agreements exist between ACR/P and Compton Unified Regional Occupational Program.

ACR/P courses are offered in a 2-year rotation cycle. Due to the flexible nature of ACR/P's degree and certificate requirements that allow students to choose any ACR/P classes that add up to the total required units, there is no urgent need to offer alternate classes in order to boost graduation rates. However, the cancellation of the afternoon paint classes and estimating class years ago prevents students from obtaining a well-rounded collision repair education. Informal student interviews confirm that ECC students and alumni are enrolling in paint and estimating classes offered by neighboring community colleges.

Pressure from division and college leaders exists to reduce the number of high-unit courses in favor of smaller 4-unit courses (See Appendix A - Draft New Curriculum Outline). This redesign would require significant changes to department curriculum as well as opportunities for modernization and new content. However, ACR/P student opinion polls show that students are almost unanimously against the change away from eight-unit classes. Students polled do show interest in new course topics such as Interviewing and Soft Skills for Collision Repair Technicians, Body Shop Management, and Collision Repair Entrepreneurship.

Graduation rates have increased in the past few years due to a division-wide campaign to encourage students to apply for certificates they have earned. The trend is expected to continue in ACR/P, though students seem more willing to earn certificates than degrees. The reinstatement of the 20-series classes (ACR/P 20, 22, 24, and 26) offers opportunities for 6-unit mini certificates, which has boosted certification rates. Data differentiating the number of each type of certificate earned is unavailable.

Degrees and Certificates Awarded

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
A.S. Degrees	2	0	1	0	2	0
Certificates	0	0	4	17	3	6

No state licensure exams are required for employment in the field of auto collision repair, though two industry certifications are strongly recommended: ASE Certified Technician status and I-CAR Qualified Technician points. Student participation in attempting the ASE exams has been added to the ACR/P Program SLO, and an I-CAR course content partnership agreement is sought for the near future. A reimbursement program for student ASE exam fees is being designed as an incentive to encourage students to attempt the tests.

IV. Student Learning Outcomes (SLOs)

SLO statements have been written for the ACR/P program and all courses, and the SLO assessment cycle has begun. SLO assessment results show adequate student achievement, but more data is needed from upcoming semesters to analyze trends and to make recommendations. The Accrediting Commission for Community and Junior Colleges will consider the ACR/P program to be in the Development phase of

implementation. In the next few years, SLO assessments will become an instructor habit no more intrusive than writing a syllabus and submitting grades, and recommendations for quality improvement will be reviewed and acted upon to benefit the students.

ACR/P SLO List

Course	SLO Titles
1A	OSHA Regulations
1B	3 MIG Welds, Misaligned Panel
1C	Direct-Indirect Damage, Frame Damage Types
1D	Plastic Repair, Suspension Damage
2A	Mix and Spray Primer, Panel Prep
2B	Spray Booth Operation, Chemical Additives
2C	Two-Tone Plastic Bumper, Match and Spot Blend
3A	Structural Damage Estimate
4abcd	I-CAR MIG Welds, Panel Damage Repair
5abcd	Mix and Spray Primer, Chemical Additives
6abcd	Damaged Panel Repair Plan, 3 MIG Welds
20	Vehicle Construction, Occupant Restraint Systems
22	Investigation Procedures, Vehicle Crush Analysis
24	Vehicle Crush Analysis, Low Speed Impacts
26	Occupant Dynamics, Vehicle Damage Photography

SLO Assessment Schedule

Academic Year	Semester	Course-Level SLO	Program SLO
Year 1	Fall 2011	1A, 2A, 4abcd, 5abcd, 26	ASE B2 (2A)
Submit Program Review	Spring 2012	1A, 1B, 4abcd, 5abcd, 20	ASE B3 (1B)
Year 2	Fall 2012	1A, 1C, 4abcd, 5abcd, 22	ASE B4 (1C)
	Spring 2013	1A, 1D, 4abcd, 5abcd, 24	ASE B5 (1D)
Year 3	Fall 2013	1A, 2A, 4abcd, 5abcd, 26	ASE B2 (2A)
	Spring 2014	1A, 1B, 4abcd, 5abcd, 20	ASE B3 (1B)
Year 4	Fall 2014	1A, 1C, 4abcd, 5abcd, 22	ASE B4 (1C)
	Spring 2015	1A, 1D, 4abcd, 5abcd, 24	ASE B5 (1D)

V. Facilities, Equipment and Technology

The tools and equipment available to ACR/P vary in condition between adequate and in need of repair/replacement. In pursuit of National Automotive Technicians Education Foundation (NATEF) Certification (see Direction and Vision below), about $38,000 in CTEA grant funds have been secured in 2011

and will be spent on new equipment and tools for the department. This amount covers about half of the needed funds to comply with all NATEF tool requirements, and more CTEA funds will be sought in 2012.

Since obtaining NATEF Certification is an urgent priority for the department (see Appendix B – What is NATEF), the purchase of NATEF required tools is an immediate need. Long-range needs for a real classroom with computer access for students will be provided in the new building.

The ACR/P facility needs its walls repainted but is overall quite serviceable, and major equipment (spray booths, vacuum system and frame rack) is aging but maintained. A new vehicle lift is now needed after failure of the existing lift in 2011. A waterborne paint toner system is also needed urgently since the 2009 environmental law forbidding the use of high volatile organic compound solvent-based paints forced the department to get rid of its previous paint system. Most facility improvements will be addressed by the new Shops building scheduled to be completed in summer, 2014.

Facility and Equipment Needs by Priority

1. Achieve NATEF certification ($34,000 remaining need for required equipment, see Appendix C - NATEF Required Tool List.)
2. Obtain waterbase paint system to comply with new laws ($15,000 or donation assistance)
3. Vehicle lift ($10,000 for machine and installation)
4. Estimating software and class computer access

VI. Staffing

Current ACR/P staff includes one full-time instructor and three part-time instructors. Two part-time tool room attendants assist students during lab time. Beginning in 2011, student and volunteer lab assistants were hired to help with large lab classes for safety and student success. This arrangement worked out very well and should be continued. Staffing is currently adequate for the classes offered, although when department requests to reinstate the afternoon paint classes are granted a second full-time instructor will be needed.

Staffing Needs by Priority

1. Student lab assistants for morning class (Federal Work Study)
2. Hire second full-time instructor to handle reinstated afternoon classes ($82,000/year)

VII. Direction and Vision

The auto collision industry hiring and employment outlook for the next five years shows only minimal improvement after 2009's significant economic recession and is not expected bounce back to 2007's peak in the near future. Between 2005 and 2016, automotive body repair technician jobs are predicted

to fall in number by 11% overall in Southern California. Since 2009, car owners have experienced typical numbers of accidents but have not made vehicle repair a priority, which caused collision repair centers to close and downsize nationwide. Smart repair facility owners adopted a 'quality if not quantity' outlook and the best technicians were sought and retained, while experienced average and below-average technicians now compete with inexperienced graduates for jobs. Unemployed technicians also compete with younger students for seats in college classes and expect colleges to provide current and valuable training they can use to re-enter the industry.

Median hourly income for an automotive collision technician was $20.78 in 2010, and half of all technicians earned between $14.73 and $31.76 per hour. The difference is significant: a low-paid tech earns just $29,000 per year on this scale while a valued tech earns $63,000 or more.

To ensure ACR/P students and graduates are attractive to employers and can begin earning at the upper end of the pay scale as soon as possible, ACR/P will also adopt a 'quality if not quantity' approach to student training. Every effort will be made to teach I-CAR and ASE-correct and vehicle manufacturer-recommended repair procedures using the same technologically advanced and efficient equipment used by high-end repair shops in the area. ACR/P will strive to achieve NATEF Certification, a prestigious designation awarded to colleges that pursue the highest quality training standards. Currently, only three other collision repair training centers in California have achieved this certification.

Since a direction of Quality has been set as a department goal many other visions for the benefit of the students and the college fall easily into place. Through quality reputation building, the department hopes to attract donations of modern vehicles and repair materials, re-establish graduate placement and alumni tracking/communication programs, promote 'green' practices in auto collision repair, promote auto collision as a lucrative and rewarding profession for women as well as men, and initiate community and campus outreach promotions to invite all ECC students and our neighbors to share in our success and vision. The biggest benefactors of ACR/P's efforts to provide quality training will of course be the students and graduates of the program.

Following our department and campus missions, graduates will indeed be prepared for employment and will receive high-tech hands-on training. ACR/P curriculum is naturally strong in the core competencies Information and Technical Literacy and Critical, Creative and Analytical Thinking. Students are also encouraged to embrace Professional and Personal Growth. Focus on strategic initiatives D (extra-campus partnerships), F (facility and equipment improvements) and G ('green' practices) are short term priorities.

VIII. Prioritized Recommendations

1. Achieve NATEF certification ($34,000 remaining need for required equipment)

2. Obtain partnership with ‘green’ waterbase paint system to comply with new laws ($15,000 or donation assistance)
3. Reactivate CWEE Work Experience class (ACR/P 95abcd) and partner with local shops to provide students with real-world training (Approved for Spring 2012)
4. Continue to promote completion of and application for degrees and certificates
5 Continue efforts to recruit women into department classes ($1200/yr, events & promotion)
6. Reputation-building on campus and in the community (website, Facebook social media page, on-campus events, multi-college competition events, etc.)
7. Actively encourage students to attempt and pass ASE certification tests
8. Create an alumni tracking and employment support system for students
9. Reinstate the afternoon paint and estimating classes (2A, 2B, 2C, 3A)
    8a. Hire a full-time instructor for afternoon classes ($82,000/yr)
    8b. Purchase estimating software and arrange class access to computers
10. Integrate I-CAR content and qualification tests into curriculum ($15,000 full access content)

CTE Program Review

1. Occupational Demand

Despite the nationwide recession and high unemployment rate in all fields, collision repair center managers continue to report difficulty finding and hiring quality personnel. In addition to technical skills, employment candidates are expected to have the basic professional skills ('soft skills') to interview and communicate well, work responsibly and be dependable. Training in these skills is already being added to ACR/P curriculum. Although the number of collision repair technician jobs shows an overall decline of 11% between 2005 and 2016, educated and dedicated technicians will be eagerly sought by employers hoping to achieve more throughput and profits with fewer employees.

2-3. State and District Need

Locally, Torrance is an area densely populated with collision repair centers, and is located in the heart of Southern California's car culture history. Within a ten mile radius of campus, over 200 auto collision repair and customization shops currently exist. Southern California was the birthplace of the auto customization craze in the 1950's, and Southern Californians are still passionate about their cars as an extension of their personality. Desire for collision repair services has remained steady over the last five years, although vehicle owners' budgets have not kept up. A glut of collision and customization work is expected in shops as the economy improves over the next few years according to Advisory Board predictions.

4. The Competition (Similar Programs)

Five other Los Angeles and Orange County community colleges offer collision repair courses, although the quantity of class offerings has decreased in recent years. Colleges such as Cerritos College, Cypress College, Compton College, Los Angeles Trade Tech College and Rio Hondo College all compete with El Camino for students. Independent institutions such as WyoTech and regional occupational programs (ROPs) also compete for student enrollment. Some of these schools are no threat to ECC while others such as WyoTech and Cypress College have large auto collision departments with excellent reputations. El Camino ACR/P currently distinguishes itself by offering its accident reconstruction and investigation classes, which is unique in the area. Through NATEF certification and the achievement of the department's other goals of quality, it is intended that El Camino will be considered by local industry to have one of the top three auto collision programs in Southern California by 2020.

5. Student Satisfaction

ACR/P students are predominantly young (18-21 yrs.), undecided or unknown majors, and attend El Camino part-time. Most students enroll in ACR/P classes with the desire to learn how to repair their own vehicles instead of embarking on an educational journey to a career. By graduation however, many students have 'caught the bug' and enthusiastically pursue a career in auto collision repair. Currently, no post-graduation employment tracking system exists, but plans to create one have begun. From a small number of face-to-face student interviews, students do indeed value their ACR/P education and feel optimistic and confident seeking employment in the field. One student obtained a job with a collision repair and detailing chain that was so delighted with him that they promoted him through the ranks all the way to paint shop manager in less than 6 months. The company then hired other ACR/P grads in hopes that they would impress as well.

Most ACR/P instructors have been designated by students to receive awards of thanks and praise, and recently hired instructors will likely win awards of their own in time. Faculty evaluation statistics show high levels of student satisfaction with ACR/P instructors.

6. Completion and Success Rates

Completion and success data shows a divide between students who achieve good grades (A and B) and those who perform very poorly or do not complete their course (F, W and DR). Not many students fall in the middle, showing that some students try auto collision repair and like it while others may be shocked to find ACR/P is not the 'easy A' they were hoping for. Some students like the hands-on portion of the class but do not value their grade, others drop their class at the last minute or even fail on purpose so that they can repeat the course. Curriculum and class policies are being rewritten to channel these students' efforts in more beneficial directions.

7. Advisory Board

ACR/P continues to struggle to assemble a dedicated board of professionals willing to attend group meetings. Many professionals offer industry news, advice and opinions to ACR/P online or one-on-one however, and the suggestions are useful and appreciated. Board members consist of shop owners/managers, paint and tool representatives, educators at the high school and college level, and of course, industry technicians. Requests for training in 'soft skills' and in the new waterborne paints are the most common. Complaints about the severe lack of speed in ECC certificate processing have been received from adult students attempting to obtain professional training or re-enter the industry. Curriculum is being amended to include professional skills, and complaints regarding certificate processing have been routed to the correct contacts.

Appendix A – Draft New Curriculum Outline and Certificate Requirements

10 SERIES – Structural and Non-Structural Autobody Repair

ACR/P 10 – Beginning Automotive Collision Repair I – 4 Units
Tool and vehicle parts identification, basic safety, small dent repair, plastics scratch and dent repair, spraying primer, intro to estimating

ACR/P 11 – Beginning Automotive Collision Repair II – 4 Units
Automotive welding and safety, automotive metals, metal finishing, large dent repair, corrosion protection, vehicle disassembly and reassembly

ACR/P 12 – Intermediate Automotive Collision Repair I – 4 Units
Pulling damage with a power post, porto-power, panel replacement and alignment, moveable glass

ACR/P 13 – Intermediate Automotive Collision Repair II – 4 Units
Replacing door skins, panel bonding, aluminum dent repair and priming, plastics structural repair, detailing vehicles for delivery

ACR/P 14 – Automotive Frame Straightening I – 4 Units
Full frame vehicle damage types, using the frame rack and accessories, 3D measuring system, direct and indirect damage and repair

ACR/P 15 – Automotive Frame Straightening II – 4 Units
Unibody vehicle damage, using computerized measuring and straightening systems, replacing structural parts and panels with MIG and resistance spot welders

ACR/P 16 – Advanced Automotive Collision Repair I – 4 Units
Front end damage- pulling core support, front side member and cowl damage, steering and suspension systems and damage ID, wheel alignment, replacing structural glass, restoring corrosion protection

ACR/P 17 – Advanced Automotive Collision Repair II – 4 Units
Side and rear damage – pulling B-pillar damage, pulling quarter panel, trunk and rear body panel damage, vehicle sectioning, working with aluminum and composite structural components

20 SERIES – Mechanical Systems for Collision Repair Technicians

ACR/P 20 – Beginning Mechanical Systems for Collision Repair – 4 Units
Suspension, steering and brakes

ACR/P 21 – Intermediate Mechanical Systems for Collision Repair – 4 Units
Drivetrain, fuel systems, cooling, heating and air conditioning

ACR/P 22 –Advanced Mechanical Systems for Collision Repair – 4 Units

Electrical systems, airbags and restraint systems, hybrid safety

30 SERIES – Automotive Refinishing

ACR/P 30 – Beginning Painting I – 4 Units
Safety, spray gun use/setup/cleaning, spray booth use, environmental laws, intro to surface prep, paint mixing, painting parts and panels

ACR/P 31 – Beginning Painting II – 4 Units
Vehicle disassembly for refinishing, vehicle masking, surface prep, plastics refinishing, sealers, corrosion protection, recordkeeping/VOCs, painting parts on vehicle, painting complete cars

ACR/P 32 – Intermediate Painting I – 4 Units
Vehicle detailing and delivery, color blending, color variants, pouring colors, troubleshooting problems

ACR/P 33 – Intermediate Painting II – 4 Units
Spray gun and paint brands and costs, working with existing historic paint types, spot blending, color matching, difficult colors

ACR/P 34 – Advanced Painting I – 4 Units
Production painting, blending clear, recordkeeping and materials inventory management, permits, working with paint reps

ACR/P 35 – Advanced Painting II – 4 Units
Spraying tri-coats, two-tones, graphics and stripes, applying decals and emblems, custom paints and painting

40 SERIES – Automotive Metal and Composites Fabrication

ACR/P 40 – Beginning Metal Fabrication - 4 Units
Welding, safety, hand and pneumatic tools, shop fabrication equipment (shear, press, bending break, bench grinders, etc.), small patch panels, hammerforming

ACR/P 41 – Intermediate Metal Fabrication – 4 Units
Non-structural modifications, large panel fabrication, shop fabrication equipment (bead roller, tubing bender, English wheel, Sunchaser disc, etc.), user-based design, vehicle law

ACR/P 42 – Advanced Metal Fabrication – 4 Units
Structural modifications such as vehicle chopping, sectioning, and frame alteration, structural considerations for performance and safety, working with high strength steel and aluminum, leading

ACR/P 43 – Plastics and Composites – 4 Units
Customization and fabrication of plastic and fiberglass panels and components, working with carbon fiber and composites, moldmaking and parts production

50 SERIES – Automotive Estimating, Shop Management and Employment

ACR/P 50 – Technical Job Skills – 2 Units
Basic skills for bodyshop technicians such as basic math skills, filling out application forms and tax forms, interview strategies, business ethics, job performance expectations, employee rights, working with others, talking to superiors and customers

ACR/P 51 – Collision Damage Estimating I – 4 Units
Non-structural damage estimating, vehicle parts nomenclature, calculating times, rates and pricing, shop estimators and insurance adjusters

ACR/P 52 – Collision Damage Estimating II – 4 Units
Structural damage estimating, structural vehicle parts nomenclature, using computerized estimating programs

ACR/P 53 – rename of acrp 20 – 3 Units

ACR/P 54 – rename of acrp 22 – 3 Units

ACR/P 55 – rename of acrp 24 – 3 Units

ACR/P 56 – rename of acrp 26 – 3 Units

ACR/P 57 – Collision Repair Shop Management– 4 Units
Hiring, firing and leading employees and teams, budgeting materials and resources, work flow and efficiency, permits and laws, OSHA, AQMD, and HAZMAT, working with insurance companies and paint reps, employee rights, handling customer disputes and complaints

ACR/P 58 – Automotive Entrepreneurship – 4 Units
Creating a business plan, funding and loan options, creating a budget, zoning, permits and other laws, insurance and liability, accounting, hiring and firing, working with customers, SEMA, NACE and other resources

CERTIFICATES OF ACHIEVEMENT

Non-Structural Collision Repair – 18 Units (Aligns with ASE B3 test)
ACR/P 10, 11, 12, 13, 50

Structural Collision Repair – 22 Units (Aligns with ASE B4 test)
ACR/P 10, 14, 15, 16, 17, 50

Automotive Mechanical Systems for Collision Repair – 18 Units (Aligns with ASE B5 test)
ACR/P 10, 20, 21, 22, 50

Automotive Refinishing – 22 Units (Aligns with ASE B2 test)
ACR/P 10 and 50, choice of 4 of the following: ACR/P 31, 32, 33, 34, 35

Automotive Fabrication – 22 Units
ACR/P 10, 40, 41, 42, 43, 50

CERTIFICATES OF ACCOMPLISHMENT

Automotive Collision Damage Estimating - 8 Units (Aligns with ASE B6 test)
ACR/P 51 and 52

Automotive Collision Investigation – 6 Units
ACR/P 53 and 54

Automotive Accident Reconstruction – 6 Units
ACR/P 55 and 56

ASSOCIATE OF SCIENCE DEGREES

To be determined

Appendix B – What is NATEF?

NATEF (National Automotive Technicians Education Foundation) is an organization that acknowledges schools that provide exceptional, up-to-date automotive programs to their students. Currently, only three other auto collision programs are certified in the state of California. Achieving certification would not only boost El Camino College's reputation, it would put our collision repair program on an entirely different level of interaction with auto manufacturers, collision repair shop owners, repair product suppliers, and other donors. Certification would also increase the opportunities and employability of our students and graduates.

Achieving NATEF certification begins an upward spiral of win-win situations between El Camino College, its students, and the collision repair industry. Currently, from local collision repair shops' point of view, El Camino College is just another community college with an autobody program. The ACR/P department receives few donations and has no placement services established with local collision repair shops. Hiring managers at these shops do not see much value in an autobody degree, and assume students learn only from textbooks, filmstrips and instructor demonstrations. Yet the most often heard complaint from shops is the lack of trained technicians with professional attitudes available to hire. When hired, a current graduate must prove his technical skills at the same entry level as a new hire without a degree. Achieving NATEF certification can correct shops' perceptions of community college degrees by giving ACR/P its 'stamp of approval' which will attract industry donations, partnerships, and technology to provide the most current, technologically advanced, hands-on automotive education to our students. A degree or certificate from El Camino College would then have value to employers, and hired graduates could begin work at a higher level of technical expectations and pay, which in turn would boost ECC's reputation among students interested in careers in collision repair.

Students receive the most benefit from NATEF certification. Currently, our students are trained using aging tools and equipment on the students' own vehicles, usually vehicles produced in the 1990s (average project vehicle year of manufacture in ACR/P 1A, Spring, 2011: 1989). Although these vehicles seem fairly new considering the automobile's 100+ year history, one must remember that a vehicle produced in 1992 will be *twenty years old* in 2012. From a technology standpoint, twenty years is an eternity. Consider advancements in computers, cell phones and robotics. A NATEF-certified training facility can attract current-production-year vehicle and parts donations directly from auto manufacturers who are eager to build a well-trained pool of technicians to support their products and their customers. A NATEF-certified training facility can attract donations and partnerships with tool manufacturers and paint and repair materials manufacturers that hope to push their products into quality repair shops through technician loyalty. Having access to the best quality tools and materials and the latest vehicle technology possible prepares the students for employment in the most technologically advanced repair shops, which not only means better pay and benefits, but also a sense of pride, accomplishment and value of continued education for the hired graduate.

The last entity to benefit from NATEF certification is El Camino College. A promising career with the dignity and respect a skilled technician deserves is excellent incentive for students to enroll, attend, complete and succeed in ECC's Auto Collision program. Achieving NATEF certification begins the chain of

events that will correct ACR/P's lower-than-state-average rate of degrees and certificates awarded and boost completion and success rates. Having a quality program will make ECC more attractive to high school students interested in auto collision including female students who may be reluctant turn their automotive interest into a career goal. This reluctance combined with the thought of enrolling in a no-name school with few placement options may be the three strikes it takes for these potentially successful women to tragically rule out auto collision as a career.

The Auto Collision Repair & Painting department's advisory board is of the unanimous opinion that NATEF certification would benefit the school, the students, and, through the hiring of quality graduates in local repair shops, the community as well.

Appendix C - NATEF REQUIRED TOOL LIST

Tool	Vendor	P/N	Price Each	Qty	Total
General Shop Equipment					
Coolant drain pan	Napa	ATD 5185	$13.65	1	$13.65
Corrosion protection application equip.	FM	UPO 726	$13.50	1	$13.50
Creepers	Napa	ATD 81050	$59.95	1	$59.95
Grounded extension cords	Napa	ATD 8009	$36.99	4	$147.96
Heat lamp	Napa	INF 15-1015	$447.00	1	$447.00
Jack stands (set of 2)	Napa	ATD 7443	$36.95	3	$110.85
Oil drain/storage pan	Napa	ATD 5184	$13.65	2	$27.30
Pressure washer	Napa	ETQ 2000 PSIHR	$229.95	1	$229.95
Service jacks	Napa	HWA HW 93642	$419.00	2	$838.00
Floor mops	Napa	GRA 30915	$13.50	4	$54.00
Mop buckets	Napa	GRA 5NY79	$12.39	4	$49.56
Step ladder	Napa	GRA 1CMT4	$124.93	1	$124.93
Trouble/work lights	Napa	ATD 8004	$59.95	3	$179.85
Vacuum/shop vac	Napa	SPV 96212	$159.95	1	$159.95
Work bench vise	Northern Tool	34982	$299.99	6	$1,799.94
Work stands - portable	Napa	ATD 7811	$43.95	6	$263.70
Work stands - bumper	FM	Time Shaver "Win	$198.55	6	$1,191.30
Works stands - pickup bed	FM	Dar-A-Con BD-45	$420.75	2	$841.50
Wheel caster system/wheel dollies (set of 2)	Napa	OTC 1580	$350.00	2	$700.00
					$7,252.89
Special Safety Items					
Bloodborne pathogen kit	?		$0.00	1	$0.00
Eye wash station - portable	Napa	SAS 5135	$226.00	1	$226.00
Hazardous spill response kit	Napa	JUS 896000	$0.00	1	$0.00
Lineman gloves	?		$0.00	1	$0.00
Safety cans for solvents, rags, etc	Napa	JUS 90300	$81.16	2	$162.32
Face shields	Napa	SAS 5140	$15.67	6	$94.02
Safety glasses	Napa	SAS 5340	$3.95	12	$47.40

Safety goggles	Napa	SAS 5110	$10.83	6	$64.98
					$594.72

Common Hand Tools

Adjustable wrenches - 6" and 12"	Napa	ATD 425	$24.17	4	$96.68
Allen wrench set - standard .050"-3/8"	Napa	TTN 12713	$26.50	2	$53.00
Allen wrench set - metric 2mm-7mm	Napa	TTN 12714	$21.75	2	$43.50
Chisel set	Northern Tool	558601	$29.99	1	$29.99
Combination wrenches - standard 1/4"-1" and	Napa	KDT 81900	$161.60	6	$969.60
Drill motors - 3/8" reversible	Napa	IRC 05505-KL2	$399.95	2	$799.90
Drill motors - 1/2" reversible	?		$0.00	1	$0.00
Spot weld drill	FM	DEN DF-15	$409.99	4	$1,639.96
Flare nut/tubing wrenches - std 3/8"-3/4" and	Napa	KDT 81910	$83.95	1	$83.95
Flashlight & batteries	Northern Tool	330185	$44.99	1	$44.99
Hacksaw & blades	Napa	MAGS 300016	$25.70	2	$51.40
Hammers - 16oz ball peen, brass, dead blow,	Napa	KDT 82303	$94.95	8	$759.60
Ignition wrench set - std & metric	?		$0.00	1	$0.00
Impact wrench - 3/8"	Napa	IRC 2115 TIMAX	$299.95	2	$599.90
Impact wrench - 1/2"	Napa	IRC 2135 TIMAX	$344.95	2	$689.90
Inspection mirror	Northern Tool	558459	$4.59	3	$13.77
Pickup tool - magnetic	Northern Tool	150213	$5.00	2	$10.00
Pickup tool - claw type	Northern Tool	254933	$13.99	2	$27.98
Punch set (12pc)	Napa	KDT 82305	$59.95	1	$59.95
Screwdriver set (20pc) - 6" 9" 12" flat, flat stu	Napa	KDT 80066	$104.65	8	$837.20
Screwdrivers - posidrive #1 #2 #3 #4	?		$0.00	1	$0.00
Torx set - T8, 10, 15, 20, 25, 27, 30, 40, 50, 55	Napa	KDT 80057	$43.25	2	$86.50
Torx external & tamper proof set - E4, 5, 6, 8,	Napa	KDT 80727	$136.50	1	$136.50
Screw extractor set	Napa	AHN 11119	$40.95	1	$40.95
Screw starter - phillips & std	?		$0.00	1	$0.00
Socket set - 1/4" drive - 1/4"-1/2" std & deep,	Napa	KDT 80300	$130.35	2	$260.70
Socket set - 1/4" drive - flex/u-joint metric	Napa	KDT 80565	$89.25	1	$89.25
Socket set - 3/8" drive - 5/16"-3/4" std, 3/8"-3	Napa	KDT 80550	$142.15	6	$852.90
Socket set - 3/8" drive - extensions 3" 6" 12" 1	Northern Tool	2550417	$29.99	4	$119.96
Socket set - 3/8" drive - flex head ratchet	Northern Tool	558065	$17.99	2	$35.98

Impact sockets - 3/8" drive - 10-19mm	Napa	SUU 3358	$24.95	2	$49.90
Impact driver - 3/8" drive	Northern Tool	15825	$11.99	2	$23.98
Socket set - 1/2" drive - 7/16"-1 1/8" std & de	Napa	SUU 2665	$166.95	4	$667.80
Socket set - 1/2" drive - 10-25mm std & deep	Napa	SUU 2668	$169.95	4	$679.80
Socket set - 1/2" drive - extensions 5" 10"	Northern Tool	558316	$11.99	4	$47.96
Socket set - 1/2" drive - breaker bar	Napa	KDT 81308	$39.65	4	$158.60
Impact sockets - 1/2" drive 7/16"-1 1/8" std	Northern Tool	450444	$29.99	2	$59.98
Impact sockets - 1/2" drive 12-32mm	Northern Tool	450445	$29.99	2	$59.98
Impact driver - 1/2" drive	?		$0.00	1	$0.00
Torque wrench click type - 3/8" drive 30-250 i	Napa	KDT 85051	$128.55	1	$128.55
Torque wrench click type - 3/8" drive 5-75 ft-l	Napa	KDT 85052	$128.55	1	$128.55
Torque wrench click type - 1/2" drive 50-250 i	Napa	KDT 85054	$139.55	1	$139.55
					$10,578.66

Miscellaneous Tools

Caulking gun	Napa	AST 405	$30.35	1	$30.35
C-clamps - assorted	Napa	ATD 5313, 5314, 5	$48.80	4	$195.20
Files - steel & aluminum	Napa	KDT 82820	$68.25	2	$136.50
Gear puller set - heavy duty	Napa	OTC 1180	$485.95	1	$485.95
Heat gun	Napa	MTA HG751B	$120.75	2	$241.50
Hole saw set - 1/2" - 2"	Napa	AHN 3073004	$95.95	1	$95.95
Lug wrench	Napa	KEN 35630	$18.35	2	$36.70
Oil can - pump type	Napa	PLE 50-337	$15.32	1	$15.32
Pry bar set	Napa	KDT 82301	$103.95	1	$103.95
Putty knife	Napa	KES 564	$5.58	10	$55.80
Rivet gun - heavy duty large for 3/16" and 1/4	Napa	MAR 39010	$176.95	1	$176.95
Scrapers	Napa	KDT 84080	$42.85	2	$85.70
Scratch awl	Napa	KDT 84003	$12.49	2	$24.98
Tap & die set - metric	Napa	AHN 26376	$229.95	1	$229.95
Tap & die set - std (optional)	Napa		$0.00	1	$0.00
Tape measure - std & metric	Napa	TIN 17500	$14.99	10	$149.90
Tin snips	Napa	KDT 82843	$44.95	1	$44.95
Tire pressure gauge	Napa	MIL 5920	$17.04	3	$51.12
Tire inflator	Napa	AMF 150	$19.95	3	$59.85

Twist drill set - 1/64"-1/2" by 1/16 increment	Napa	AHN 60148	$95.95	2	$191.90
Wire brushes for drill	Northern Tool	3320064	$5.00	3	$15.00
Door handle remover	Napa	LIS 18600	$8.25	4	$33.00
Door hinge spring & pin remover	Napa	5TK 21835	$25.95	2	$51.90
Trim removing tool set	Napa	ATD 8584	$39.95	2	$79.90
Molding removing tools	Napa	AST 4505	$9.95	2	$19.90
Spring lock line removal tool set (a/c, fuel)	Napa	ATD 3399	$36.95	1	$36.95
Stationary glass removal tools	Napa	AST WINDK	$119.95	1	$119.95
Windshield wiper removal tool	Napa	LIS 65750	$5.25	2	$10.50
					$2,779.62

Body Working Tools

Body files	Napa	SGT 89750, 89770	$82.90	4	$331.60
Cheese grater	FM	Stanley 10" 1/2 ro	$3.99	12	$47.88
Hand sanding pads	FM	3M 05526	$3.20	12	$38.40
Metal files	Northern Tool	25154317	$19.99	2	$39.98
Sanding blocks - short & long	Napa	DRB AF44L	$74.60	12	$895.20
Sanding boards - short & long	Northern Tool	117365	$14.99	12	$179.88
Body hammers & dollies - cross peen, door sk	Napa	FMT 691K	$791.45	6	$4,748.70
Filler spreaders	Napa	AES 61500	$5.76	24	$138.24
Body picks - assorted	Napa	DF-PDRKIT9	$249.00	1	$249.00
					$6,668.88

Structural Analysis & Damage Repair

Tram gauges	Napa	DTF DF30	$1,061.25	1	$1,061.25
					$1,061.25

Non-Structural Analysis & Damage Repair

Abrasive cut-off tool/die grinder	Napa	IRC 326	$77.50	6	$465.00
Heat shrinking tool (Maxi Welder)	Napa	DF 505	$1,575.00	1	$1,575.00
MIG welders	Lincoln	K2473-1	$774.00	4	$3,096.00
Plasma cutting torch (recommended)	Napa	VCT1-1110-1	$895.00	1	$895.00
Portable hydraulic ram (Porto-power)	Northern Tool	15616	$319.99	1	$319.99
Plastic welder	Napa	URE 5600HT	$209.95	2	$419.90

Die grinding tool set (Dremel)	Napa	ATD 8160	$114.95	2	$229.90
Disc grinder - 3"	Napa	IRC 317A	$87.95	6	$527.70
Disc grinder - 3" collet/pad	FM	3M 05540	$18.35	6	$110.10
Structural adhesive gun (2-component)	FM	SEM 70029	$99.00	1	$99.00
Abrasive blaster (recommended)	Napa	ATD 8402	$214.95	1	$214.95
Eraser wheel tool w/ eraser & collet	Napa	AST 533ET	$74.95	2	$149.90
Grinders - 5"	FM	TCP SA2376	$49.95	6	$299.70
Metal shears (optional)	Napa	IRC 78025A	$199.95	1	$199.95
Nibbler (optional)	Napa	IRC 325B	$184.95	0	$0.00
Power reciprocating saw & blades (Sawzall)	Napa	MWK 6509-31	$169.95	1	$169.95
DA sanders	Napa	IRC 315	$133.25	6	$799.50
Cable or chain ratchet (come-along)	Northern Tool	152911	$129.99	2	$259.98
Slide hammer w/ attachments (morgan nokke	FM	MRG NO9	$174.51	2	$349.02
Bench grinder	Napa	ATD 10558	$95.95	3	$287.85
Drill press	Napa	WIL 354402	$1,255.00	1	$1,255.00
Welding apron	Northern Tool	175920-2101	$23.49	1	$23.49
Welding mask #10 w/ gloves	Napa	AST 8075SE	$152.95	4	$611.80
Welding goggles #5	Napa	7771466	$12.29	6	$73.74
Welding jackets	Northern Tool	157910-2101	$36.99	2	$73.98
Welding blanket	Northern Tool	170387-2101	$64.99	3	$194.97
Squeeze-type resistance spot welder	Pro-Spot	i4	$21,000.00	1	$21,000.00
Weld-on pulling tool/Stud welder & slide ham	Napa	UNI 5500	$434.00	4	$1,736.00
					$35,437.37

Painting & Refinishing

Color matching light system	FM	3M 16400	$368.49	2	$736.98
Electronic dry film thickness gauge - +/- 1/10r	FM	PRM 5437	$532.53	1	$532.53
Wheel covers (set of 4)	FM	FIV 5002	$18.15	2	$36.30
Paint mixing bank & toners	FM	PPG	TBD*	1	
Paint mixing scale & computer system	FM	PPG	TBD*	1	
Portable paint curing system (infrared)	FM	INF 17-1015	$429.00	1	$429.00
Spray guns - primer	FM	3M	$149.99	4	$599.96
Spray guns - paing/clear	FM	3M	$149.99	4	$599.96
Spray gun cups (box of 2)	FM	3M PPS 16001	$29.11	4	$116.44

Spray gun cleaning equipment - solvent	Safety Kleen	1055	$2,033.00	1	$2,033.00
Spray gun cleaning equipment - waterborne	FM	Drester 1050	$2,460.00	1	$2,460.00
DA sander interface pads	FM	3M Hookit II 0577	$11.16	4	$44.64
Variable speed buffer	FM	DeWalt DW849	$259.99	2	$519.98
					$8,108.79
				TOTAL	**$72,482.18**

* ACR/P will seek partnership with PPG to obtain donated or reduced-cost mixing bank, toners, computer and scale. Cost could vary between $0-$15,000