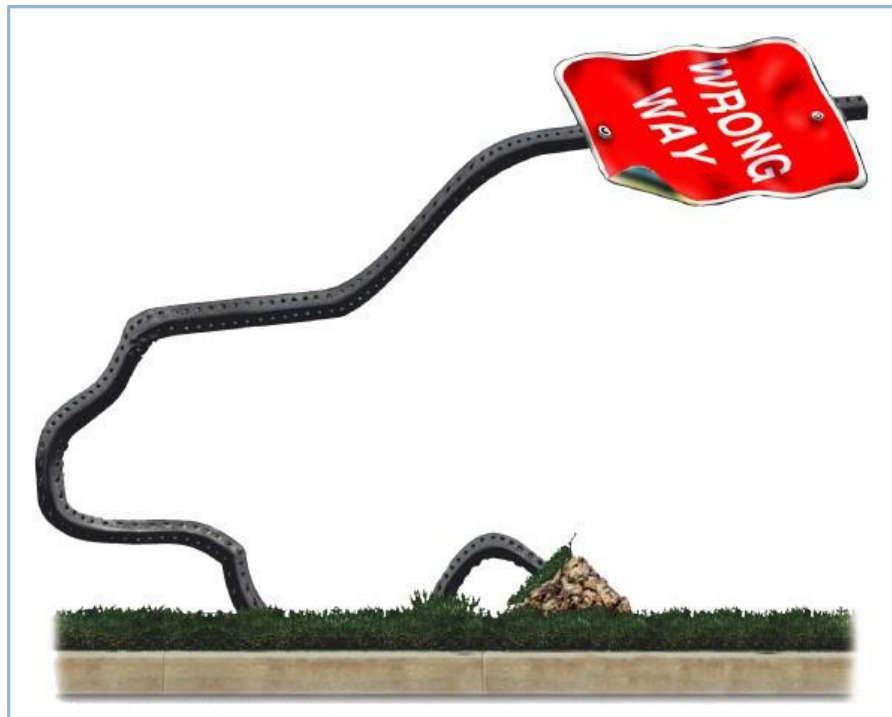


AUTO COLLISION REPAIR TECHNOLOGY



2016

Program Review

Auto Collision Repair Technology

PROGRAM REVIEW

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Program Overview

Auto Collision Repair Goals, Standards and Principles

The PCC Auto Collision Repair Technology (ACR) program works hard to prepare students for employment in a rapidly evolving and fast-paced industry that offers many opportunities for employment and growth. We do this by maintaining a learning environment as closely modeled to current industry practices as possible. All classes are taught as a mix of classroom learning and hands-on lab practice utilizing current equipment and practices.

The course curriculum for our program is developed and updated by I-CAR (Inter-Industry Conference on Auto Collision Repair) and is widely considered to be the most current and industry standard curriculum available. In addition to adopting I-CAR's curriculum, the ACR program has also incorporated I-CAR's internationally recognized certification into the program. This partnership with I-CAR has allowed the program to achieve its main goal of making sure that students leave with the skills and certifications necessary to obtain a job in the auto collision repair industry.

The ACR program has three main objectives that guide all training and course content.

Though some students that enroll in the ACR program do so just to have their own hobby shop or are self-employed, the first objective of the program is to prepare students to obtain a job in the auto collision repair industry. The main thrust of the program is focused on training students to become Auto Collision Repair Technicians and/or Auto Collision Refinish Technicians. This does not limit them to just these specific positions as the program opens up opportunities in a large variety of related jobs; the completion of the 1 and 2 Year Certificates or AAS Degree can lead to a career in these areas:

- auto body repair apprentice, mid-tech, or journeyman
- auto body painting apprentice, mid-tech, or journeyman
- auto body mechanic, wheel alignment person, or parts person
- auto paint polisher, detailer, or wash rack person
- body shop owner, manager, estimator, or blue-printer
- production manager or customer service representative
- insurance field coordinator, insurance adjuster, or claims representative
- parts supplier, materials supplier, or tool & equipment supplier
- paint supplier, or paint manufacturer representative
- auto body restoration, hot rod building, or custom body and paint
- aircraft repair & painting, heavy truck repair & painting, or equipment painting
- Auto Collision Repair Technology instructor, or instructional support tech

The second objective of the program is to instruct students in how to become good employees. Courses are not designed to just teach the necessary hands-on skills, but rather are designed to also incorporate the soft skills necessary to succeed in any job. This is accomplished by holding students in the program accountable for work ethic, punctuality and communication. Many ACR courses also incorporate the nurturing of leadership and people skills by having students work within team settings

and having the team leader position rotate. Assistance with resume/portfolio and job interview skills is also provided.

The third objective of the program is to teach courses using imbedded related instruction to ensure a well-rounded educational experience for all students. From the onset of the program, imbedded instruction has been a working part of the curriculum. Over the last few years, it has been necessary to verify and document the amount and quality of the imbedded related instruction within the courses that make up the program. This task was assigned to the ACR Subject Area Committee (SAC). The SAC tackled the enormous job of mapping the imbedded related instruction to computation, communication, and human relations for 5 out of 6 courses (12 credits each) that are required for the AAS Degree and 2 Year Certificate. The sixth course is the Cooperative Education course and is therefore exempt from requirements related to imbedded related instruction. **(See Appendix 1)** Because the Auto Collision Repair Paint program offers a Less than 1 Year Certificate, those courses are also exempt.

Changes Since Program Review 2011

Many auto collision repair training programs have shut down and disappeared over the last several years due to budget cuts and an unwillingness to stay current with the changing industry, leading to an inability to meet the needs of today's auto collision students. By investing in modern systems and equipment the PCC ACR program has become one of the largest and most comprehensive on the West coast. As a direct result of SAC and Advisory Committee

recommendations during the last Program Review, the Auto Collision shop at PCC has been updated with two premium paint spray booths and also underwent a complete renovation of the shop including new welders, frame measuring systems and a new layout designed for better efficiency. In addition to the changes in the shop, the program also acquired a new dedicated classroom. This new space allows much greater access for large scale props and demonstrations inside of the classroom environment including a new virtual paint system. With the virtual paint system, students are able to practice spray technique in a virtual environment saving significantly on materials cost. The virtual paint system has also proved to be a powerful tool for marketing. It is taken to many events and career days as a way to showcase the program and create interest in the ACR booth. The program is also in the middle of a project to create a new program video that can be shown to potential students, with all of the updates over the last 5 years, the need for an updated video became obvious.



NEW SPRAY BOOTHS

The auto collision repair industry is rapidly evolving due to new technologies and new construction methods as automakers seek to increase fuel economy and crash safety. It is not enough to simply provide the new equipment that today's technicians need to repair vehicles; it has become clear that a new higher standard of training and knowledge are also required. The auto collision repair industry is having to develop new standards and requirements to make sure that these new high levels of precision engineering and modern technologies are maintained throughout the repair process. I-CAR

works closely with automotive manufacturers to ensure that those new technologies and processes are included in their curriculum. The addition of the new I-CAR curriculum into the ACR program has been instrumental in keeping the program up to date and on top of these new industry standards.

All courses have been updated to bring them in line with current industry standards and practices. Extensive changes were made to fully embed the I-CAR curriculum and allow the program to offer I-CAR Prolevel 1 certification in addition to the normal certificates and degree. Special training has been added to the paint courses to allow the inclusion of NESHAP certification as well. This is a special certification from the EPA that certifies painters as legal to spray paint on the job.

New Shop Equipment

The collision repair side of the shop has seen many upgrades:

- Updated laser based frame measuring system was purchased allowing students the opportunity to practice on the most popular frame measuring system used in the US.
- A new ProSpot I5 resistance welder let students recreate factory welds in current and future ultra-high strength steels.
- A Silicon bronze MIG welder was added to work in concert with the I5 to enable the repair of those ultra-high strength steels.
- 4 Nitrogen shielded plastic welders allow the program to include instruction on plastic welding technique and bumper repair.
- A two post car lift was added to increase ability to teach under-car systems and suspension repair.
- A large screen TV was added to the alignment rack to aid visibility in a group teaching environment.

On the paint repair side of the shop the program has added:

- Two top of the line GFS UltraPlus booths with mix room. Premium paint spray booths with full digital control, paint baking, and waterborne compatible.
- SATA brand supplied air respirator system with 22 hoods, so that each paint student can be assigned their own hood for the year.
- New Spectrophotometer, camera that is used to scan color. This is a special tool that painters use to take a picture of a painted surface, the tool is then connected to the computer system and a custom paint formula is created that will match very closely.
- A special trash compactor designed specifically for the masking materials used in the auto paint process.

Outcomes and Assessment

Course-Level Outcomes

The following is a list of the degree and certificate student learning outcomes.

AB - Auto Collision Repair Technology

AAS: Auto Collision Repair Technology

- Communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to terminology, processes and skills of auto collision repair and professional workplace behavior.
- Work safely in the auto collision repair industry and apply a proper understanding of the use of tools, products and chemicals and how those items affect the local and global environment.
- Identify and implement strategies and processes to solve workplace and vehicle repair problems.
- Apply necessary computation skills effectively as they pertain to auto collision repair.
- Access and utilize repair information in within rapidly changing technologies.
- Use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- Apply the knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with limited supervision.
- Assess, examine and reflect on their own professional competence and personal beliefs and how these impact and relate to the auto collision repair shop environment.
- Advance to leadership or managerial positions in the auto collision industry. 01-2011



FRAME RACKS

Two-Year Certificate: Auto Collision Repair Technology

- Communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to terminology, processes and skills of auto body painting and professional workplace behavior.
- Work safely in the auto collision repair industry and apply a proper understanding of the use of tools, products and chemicals and how those items affect the local and global environment.
- Identify and implement strategies and processes to solve workplace and vehicle repair problems.
- Apply necessary computation skills effectively as they pertain to auto collision repair.
- Access and utilize repair information in within rapidly changing technologies.
- Use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- Apply the knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with limited supervision.
- Assess, examine and reflect on their own professional competence and personal beliefs and how these impact and relate to the auto collision repair shop environment. 01-2011

Less than One-Year Certificate: Auto Collision Repair Technology

- Communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to terminology, processes and skills of auto collision repair and professional workplace behavior on a limited basis.
- Work safely in the auto collision repair industry and apply a proper understanding of the use of tools, products and chemicals and how those items affect the local and global environment.
- Identify and implement strategies and processes to solve workplace and vehicle repair problems on a limited basis.
- Apply necessary computation skills effectively as they pertain to auto collision repair.
- Access and utilize repair information in within rapidly changing technologies.
- Use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- Apply the knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with supervision. 01-2011

Less than One-Year Certificate: Auto Collision Repair Technology - Auto Body Painting

- Communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to terminology, processes and skills of auto body painting and professional workplace behavior.
- Work safely in the auto body painting industry and apply a proper understanding of the use of tools, products and chemicals and how those items affect the local and global environment.
- Identify and implement strategies and processes to solve workplace and auto body painting problems.
- Apply necessary computation skills effectively as they pertain to auto body painting.
- Access and utilize repair information in within rapidly changing technologies.
- Use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- Apply the knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto body painting profession, with limited supervision. 01-2011

Addressing College Core Outcomes

All six of the College Core Outcomes are integrally addressed in the Auto Collision Repair courses. Students explicitly develop communication skills and cultural awareness while working together on projects, simultaneously reflecting on their own personal progress towards technical proficiency. They must constantly think critically in order to complete tasks and obtain the technical specifications and information they need with only limited technical knowledge. This everyday practice in teamwork and goal sharing increases their professional competence to succeed in today's diverse, multicultural workforce. Below are descriptions of how the Auto Collision Repair program addresses each College Core Outcome.

Communication

Communicating effectively is an important skill in any profession. All courses are designed to help students learn practical communication skill through practice in both small and large groups. Working together in small teams helps students learn how to work together and see the benefit that multiple minds working on one problem can achieve. They also practice speaking in front of larger groups in

class settings to help prepare them for dealing with any situation that may come up in their future careers. Written communication is also practiced in a variety of assignments requiring them to express their ideas coherently. In all of these communicative activities, students continually receive formal and informal feedback (from peers and instructor). This ongoing feedback allows them to adjust their speech and writing to better express themselves.

Community and Environmental Responsibility

All of our classes regularly incorporate discussions, training and activities that address the responsibility that all members of the Auto Collision Repair community have as stewards of our environment. Many of the chemicals used in the collision repair industry contain compounds that can profoundly affect human health and the environment. Students are taught how to not only keep themselves safe, but also how to safeguard their community and the environment from the potential dangers. The collision repair industry is heavily regulated and it is necessary for student to be very knowledgeable in this area.

Critical Thinking and Problem Solving

Successful technical learning is not simply memorizing processes and rules; processes and rules are the building blocks but there are a near infinite number of ways to assemble them. This mean students must learn to recognize and understand potential problems and think critically to come up with solutions “on the fly”. Through shop projects and class work, students practice every day to come up with and employ creative solutions and further their ability to understand not just what they are doing but why.

Cultural Awareness

The student body in the Auto Collision Repair program tends to be a very diverse group, as does the entire industry. In working together closely in teams to complete assigned projects and tasks, students learn to express themselves and work together in a way that is appropriate for many different cultures and backgrounds. Students also learn to appreciate that there are many ways to tackle problems and that diversity can be a powerful tool in creating solutions to problems that may not have occurred to them without the help of someone looking at a problem from a different viewpoint.

Professional Competence

Proficiency in Auto Collision Repair is something that the majority of program students seek in order to gain employment opportunities with much better financial possibilities then they currently enjoy. As a career technical program, the ACR program is more closely aligned with this outcome than any other. A good collision repair technician must first and foremost be able to do the job well and professionally, with that in mind, all courses and projects are designed to further students’ competence in the field of auto collision repair as well as encourage good employee traits such as punctuality and reliability. In addition, students are given instruction in how to maintain current technical proficiency and sources for technical information. This helps students prepare to continue their education as they work in industry and attain the journeyman status that the majority of them are looking for.

Self-Reflection

Instructors in the Auto Collision Repair program regularly guide students to self-reflect on their own progress towards proficiency. These self-reflection activities range from impromptu discussions during class about technical issues and questions that come up during shop work, to more formal written self-assessments of program and co-op progress. This practice of self-reflection helps students to recognize the complexity of the collision repair industry and to become more aware of their motivation and goals for their professional future.

Learning/Technical Skill Assessment

Reliability

The ACR program developed scoring materials for two types of assessments: learning skills and technical skills. The ACR program combined these two projects into one comprehensive end of program assessment. As part of the Learning Assessment, the program assesses the six PCC Core Outcomes mapped to the 2 Year Certificate & Associate of Applied Science Degree (AAS) (**see Appendix 2**).

All six PCC Core Outcomes are assessed every year, additionally, one core outcome is selected for additional focus for each year. The program also assesses the students' technical skills to fulfill the Technical Skills Assessment, a requirement due to the program being a beneficiary of Perkins funding. There are many crossover areas between the Learning Assessment and the Technical Skills Assessment.



The assessment tool (**see Appendix 3**) is completed by the employer/supervisor during the completion of the student's Cooperative Education work experience requirement (300 hours). This is the sixth and last term of the ACR 2 Year Certificate and the AAS Degree.

The Learning Assessment portion focuses on 25 learning areas that align with the 6 PCC Core Outcomes. The Technical Skills Assessment portion concentrates on 20 hands-on and shop practice skills that make up five areas of objectives that the ACR program is built on: shop practices and safety, parts removal and installation, panel repair, frame repair and measuring, and weld-on panel replacement. Some of the individual assessment items could have been placed in either the Learning Assessment or the Technical Skills Assessment.

As part of the Cooperative Education agreement, the employers assess the degree to which students have met the outcomes and skills required of the certificate or degree. The ACR SAC chose 3 levels of achievement, as opposed to 4 or 5. This made the findings easier to interpret, more useful and more consistent. As a result, the assessment very reliable due to fewer gray areas in scoring.

A rubric (**see Appendix 4**) was developed by the SAC for the assessment tool to be based on. The rubric describes the 3 levels of achievement (Limited, Basic, Advanced) for each of the program outcomes and skills.

For consistency, both the rubric and the Cooperative Education Employer Evaluation sheets are administered at the work site by the Auto Collision instructor of record for the Cooperative Education course. For reliability and consistency, the two documents are read and signed by the employer/supervisor and the instructor discusses the documents with them prior to completing the evaluation. The employer/supervisor is reminded that the evaluation of the Co-op student should be based on comparison to entry level employees.

The Self-Reflection outcome is scored on a separate assessment sheet using the same rubric and is completed by the Auto Collision instructor of record and reviewed by the SAC (**see Appendix 5**). The five specific areas of assessment that cover the Self-Reflection outcome are based on student and instructor interaction, worksite visits, and 8 weeks of daily journal entries.

The information collected on each student for all of the outcomes combined is used as part of the grade for the student's 10 credits of AB280A Cooperative Education work experience. The information collected on each student for the Self-Reflection assessment is used as part of the grade for the student's 2 credits of AB280B Cooperative Education Seminar.

The ACR SAC was able to create an assessment tool that reflected both a holistic score and an analytic score. For program assessment, the information gathered from all students is entered into the assessment spreadsheet and is averaged for each outcome. For individual student assessment, an average of all outcomes is calculated for each student. The results are evaluated by the SAC for consideration of program improvement (**see Appendix 6**). Individual student scores are used as additional proof of course grades. Individual student results columns are placed into the spreadsheet in a random order for confidentiality.

Validity

The ACR program's curriculum has been developed and based on the I-CAR curriculum materials. The ACR program follows strict I-CAR guidelines that help ensure that students receive training and hands-on experience in all the areas necessary to succeed in our industry. To meet I-CAR guidelines, equipment, work areas, safety standards and instructor qualifications must meet rigorous criteria. Students spend a large percentage of class time reaching levels of competence outlined in the I-CAR guidelines. This assessment project was developed based on those guidelines and industry standards.

This assessment program was developed, evaluated and approved by the ACR program's SAC and was also evaluated and approved by the ACR program's industry Advisory Committee.

The 15-student pilot run (210-2011) of this Learning and Technical Skills Assessment was very successful. The scores were predictable based on classroom and shop lab grades. The students' strengths and weaknesses closely mirrored the results of the assessment. This assessment continues to be a successful and valuable tool. Further results broken down by year can be found a bit later in this report.

Student Proficiency Level

An average per student score of 2.0, evaluating 45 performance task areas and using a rubric consisting of 3 levels (Level 1 = Limited, Level 2 = Basic, Level 3 = Advanced) was established (**see**

Appendix 4). Averaged proficiency scores of 2.0 and greater are interpreted as evidence that individual students are meeting or exceeding the specific outcomes. It was decided by the SAC that the proficiency level should be set at the Level 2, as per our rubric scoring guide. Individual student scores of 1 in any category could trigger further evaluation of the student's abilities in that area, and could contribute to a non-passing grade for AB280A or AB280B. The goal is a score of 2.0 (basic demonstration and application of knowledge and skills) and above for all individual outcomes.

The SAC agreed to implement the use of the new scoring rubric for all ACR course hands-on projects, activities and skills. This makes it possible to have consistent assessment and grading throughout the entire program.

Improvement to Teaching and Program

Early on, the Learning and Technical Skills assessment tools exposed two areas for improvement.

Self-Reflection outcomes:

Scores indicated a lack of communicating self-reflection in the written form. Out of the 5 learning areas in this category, 4 averages were under the proficiency level score of 2.0. **(Appendix 6)**

Students write 10 to 12 one-page summaries of technical articles that they are required to read during the course of the 2 year program. They are also required to write 8 weeks of daily journal entries during the Cooperative Education work experience. The assessment showed a deficiency in Self-Reflection and a need for improvement was revealed.

The SAC agreed to implement the following strategies to help students develop the ability to communicate self-reflection in the written form:

- Show acceptable conclusion paragraph examples that highlight self-reflection.
- Have exceptional student article summaries read aloud in class to reinforce the self-reflection aspect of a conclusion paragraph.
- Give all Co-op students a handout that includes a sample journal entry as well as an explanation of what is expected to be included in the 8 weeks of daily journal entries **(see Appendix 7).**

Learning and Technical Skills outcomes for individual students:

Scores indicated that three students had a total average score that was at or below the set goal. Even with the eventual improvement in the category of Self-Reflection, which would bring these three scores up, there were other areas of concern for these three students. When examining the three students, there was a common thread. They were non-native speakers and English was the second or even third language for these students.

Some students have language barriers that may be a contributing factor. It can be difficult for them to understand technical terms, processes and skills. Reading and writing may also be a struggle.

The SAC agreed to implement the following strategies to help these students overcome these barriers:

- Be more in tune to the needs of students with language barriers.
- Try to identify those types of students early in the first term in the program.
- Strongly encourage them to get the assistance of our Technical Learning Skills Specialist.
- Encourage them to take English for Speakers of Other Languages (ESOL) classes.
- Take a look at sentence structure on test questions to make sure that they are not misinterpreted. Phrases like; most likely, least likely, all of these except, in a test question can be easily misinterpreted by those types of students.

Summary of Assessment Spreadsheet Results by Year

2010-2011 Results

Average scores in 10 out of 11 outcome categories and 12 out of 15 individual student averages were excellent! The one outcome category that did not meet the benchmark was Self-Reflection. Out of the 5 learning areas in this category, 4 averages were under a 2.0 score. Three individual student averages were not as good as preferred. Students #3 and #13 were under 2.0 average score and student #10 was right at a 2.0 average score. Even with the eventual improvement in the category of Self-Reflection, which would bring these three scores up, there were other areas of concern for these three students. When examining the three students, there was a common thread. They were non-native speakers and English is the second and even third language for these students.

2011-2012 Results, Focus: Self-Reflection

Average scores in all 11 outcome categories and all 10 individual student averages were exceptional! The Self-Reflection outcome category results last year were 4 out of the 5 separate outcomes had an average score under 2.0. This year's results for that same category have improved dramatically. Out of the 5 separate Self-Reflection outcomes, 3 were 3.0 and 2 were 2.9! All individual student average scores were 2.1 or higher! The separate rubric scores of 1 have greatly changed to more 2s and 3s. The only anomaly was that student #8 scored 1s in 6 different individual outcomes. This particular student completed all but the Co-op for the ACR 2 year certificate 10 years ago and came back to completed the Co-op this spring term. He did not have the benefit of the current ACR faculty and emphasis on team work, attitude, and being a good employee. **(Appendix 6)**

2012-2013 Results, Focus: Reassess Self-Reflection

Average scores in all 11 outcome categories and all 15 individual student averages were exceptional! The Self-Reflection outcome category results from 2010-2011 were 4 out of the 5 separate outcomes had an average score under 2.0. This year's results for that same category have proven the trend of dramatic improvement as shown in 2011-2012. Out of the 5 separate Self-Reflection outcomes, all were well above the 2.0 basic score! All individual student average scores were 2.0 or significantly higher! The only anomaly was that student #9 scored 1s in 6 different individual skill outcomes. This particular student did his Co-op part time. This can hinder a student from getting the full shop experience and limit their hands on training. Overall scores for two skills in the Panel Repair category were low. Individual skills in this category will be closely examined in the fall term Panel Repair course. **(Appendix 6)**

The anomaly that was noticed about a student that did his Co-op part time is of concern. Because of this, it was decided to discourage students from attempting to work at their Co-op shop part time and instead there will be encouragement to have them work full 40 hour work weeks.

2013 – 2014 Results, Focus: Critical Thinking & Problem Solving

There was an increase in the number of students who reached an advanced score of 3 rather than the target score of 2. That raised the average score of all relevant students for that outcome from 2.3 for last year to 2.5 for this year.

An intentional focus on one area for a single year can have a positive impact on an outcome that needs to improve. Whenever possible, encouragement is given to students to solve shop lab repair problems on their own rather than always giving them the solution. Directing them to industry repair information and data to assist them in the decision making is also fosters the Critical Thinking & Problem Solving.

Reassessed Self Reflection again

After the first year of using the assessment tools, it was identified that this outcome was the weakest area. Strategies that were agreed on by the ACR SAC were implemented. There was dramatic improvement in the next year's assessment results for that outcome. Now after 4 years of using these changes, there is lasting improvement on that outcome. **(Appendix 6)**

2014 – 2015 Results, Focus: Reassess Critical Thinking & Problem Solving

13 students out of 14 relevant students met or exceeded the benchmark of 2.0 in each of 3 categories under the heading of Critical Thinking. The one student that did not meet the benchmark in this category did meet our overall benchmark average for the entire assessment project. It was noticed that some of the students that took the Cooperative Education course before the 5th term advanced Technical Skills course, did not score as well in some advanced areas as the other students that took the courses in the proper order. Permission is given to some students with an override to do this because the Technical Skills course is only offered in the winter term. This helps those students complete the program in a timely manner. This student was one of those cases. **(Appendix 6)**

Although results were slightly lower than the year before in this category, it was pleasing to see that the overall scores are still exceeding the benchmarks. Whenever possible, encouragement is given to students to solve shop lab repair problems on their own rather than always giving them the solution. Directing them to industry repair information and data sources to assist them in the decision making is standard practice now. This is making the students more successful in the Cooperative Education work site course.

The Learning Assessments and Technical Skills Attainment are contained in the same process. Assessment of all 6 core outcome areas and 5 Technical Skills categories is done every year. Results are still very good. They exceed the goal of a 2.0 average score for all areas combined for each student.

The readiness of the individual students that we are considering letting take the Cooperative Education course out of order will be closely examined and results monitored.

2015 – 2016 Results, Focus: Communication

The outcome of Communication was assessed using six categories. 1. Reading - estimates, repair orders, parts lists, and instructions. 12 out of 13 were assessed at a Benchmark of 2 or greater. 2. Writing - parts requests, supply lists, supplements. 12 out of 13 got a 2 or greater. 3. Speaking - terminology, appropriate interactions. 12 out of 13 got a 2 or greater. Listening - following instructions, ask suitable questions. 11 out of 13 got a 2 or greater. Visually - diagrams, using technology to convey ideas. 12 out of 13 got a 2 or greater. And - Adapting to feedback. 12 out of 13 got a 2 or greater. One of the students in this group did not complete the Co-op objective and hours. This student received a No Pass. That student's assessment levels were all 1s (Limited) which did not meet the Benchmark. **(Appendix 6)**

The usefulness and results of the ACR assessment process is still very successful. With the exception of one student that did not pass the AB 280 course, it was found that the students have basic or advanced skills in communicating effectively and properly in the collision repair facility environment. Preparing the students to adapt to feedback, interact, and understand the journeyman technician as it pertains to, reading, writing, speaking, listening, and understanding visual technical diagrams is being accomplished.

All six PCC Core Outcomes are assessed every year. The consistent yearly assessing of all areas has proven that the changes implemented by the SAC have made significant improvement in scores in the deficient areas. Over the last five years of assessing, the improvements have continued to keep the student proficiency level at or above the set goal. **(Appendix 6)**

Curricular Issues

Distance Modality

The absolute necessity of face-to-face and hands on training to be successful in a career technical field like auto collision repair means that the Auto Collision Repair SAC is opposed to offering its courses in a Distance Learning format. As such, the program currently consists of no online or hybrid courses. There are, however, some online I-CAR modules that are assigned as homework. They are always followed up with hands on training in the Auto Collision Repair shop.

Educational Initiatives

Community Based Learning

Students have the opportunity to participate in the student club, "Bare Metals Club". As members of the student club, many opportunities to volunteer and help make a difference in the local community are available. Some examples include a meal delivery vehicle that was restored for St. Vincent de Paul Society and a wheelchair accessible van that was repaired. The club has also participated in campus improvement projects, notably the new Rock Creek entrance signs.



Internationalization Initiative

At this time, there are no plans for the ACR department to become involved in the PCC Internationalization Initiative.

Honors Program

The Auto Collision Repair Program currently offers no honors courses.

Career Encounters/Dual Credit

The Career Encounters-Transportation course is the closest thing to dual credit that the ACR program participates in. Career Encounters invites eligible high school juniors and seniors from the Beaverton school district to explore five career technology education programs as possible alternatives to four-year degree programs. The PCC Auto Collision Repair program does not get many students directly after high school and this program is part of the effort to change that. As of fall term 2016, 20 Beaverton juniors and seniors come to Rock Creek by bus two days a week for 11 weeks. As this program continues, there will be new group every term. Students are immersed in five CTE programs offered at the campus including Auto Collision Repair Technology. Not only do students get some hands-on experience with five different CTE programs, but they also get their own G numbers, learn how to enroll as a PCC student and learn how to register in Distance Learning courses. When it comes time to decide the next step in their education, PCC is an easy choice.

For more info about the Early College Career Encounters-Transportation course. **(See appendix 8)**

Course Evaluations

The course evaluations for each class are carefully checked and read. The faculty use this feedback to improve course pacing and materials and ensure that students are being taught the material in the most effective way possible.

Curriculum Updates

Over the last 5 years, all ACR courses have gone through a rigorous review process and been updated. The biggest impact has come from the full incorporation of I-CAR curriculum and certification. A recent I-CAR survey found that technicians with I-CAR training make on average 19% more money than non-trained technicians! **(Appendix 11) All program graduates have access to I-CAR ProLevel 1 certification with no additional fees required from the student.** All courses have gone from being based on old outdated information and techniques delivered on overhead transparencies, to new updated information and techniques taught from power point presentations, videos, and Smartboards. To go with the improved classroom experience, students are now able to review with online access to study materials. In addition to the study materials, additional online learning modules are assigned as homework. A student's I-CAR account is registered to them and stays with them and tracks their progress and certifications throughout their career. The program kept true to the Course Outcomes Guides as updates were made.

With huge improvements to the ACR shop facility, the program has also incorporated modules and activities to take advantage of the new equipment available. The greatest improvements were made in the paint shop areas. The two new and modern spray booths have enabled the inclusion of waterborne paint technology into the program for the first time. Waterborne technology has taken over much of the market share that solvent based paint lines used to dominate. Nearly ½ of large shops now use waterborne paint technology and now students leave the program with experience in that critical technology.

While the paint shop did receive the bulk of the shop updates, the body repair areas also received some much needed equipment. A new fully digital "SMART" spot welder was purchased and has been incorporated into shop learning and practice. As automotive technology advances so do the tools that enable their repair. Over the last five years, many of those new tools have been acquired and are now available in the shop. It has proven invaluable to be able to practice in the shop with the exact tools and technology that are described in the I-CAR curriculum.

The ACR program appreciates the different cultures and many different ethnic groups that make up program students and of how that can affect their needs. One of the great benefits of the program's class structures is that students work in teams or with partners in both class room settings and hands-on shop labs. Teams are created by the faculty and this provides a perfect opportunity to teach them how to work together and value each other's differences. The ACR faculty are proud to foster a culture of inclusivity and acceptance. This helps prepare them for careers in a very diverse industry where teamwork is essential.

Needs of Students and the Community

Student Demographics

The student population within PCC in general is very diverse and the ACR program reflects this diversity. There are always multiple age groups, ethnic groups and gender groups enrolled in the program. The ACR curriculum and instruction delivery style is designed from the beginning to be effective for a wide range of people, learning abilities and skill levels. With that said, there is always some concern for students for whom English is not their native language. **(See Appendix 9)** This can present some teaching challenges as these students can have problems reading, writing, speaking and comprehending technical terms and processes.



The program has documented these language challenges in the Learning and Technical Skills Assessments. **(See Appendix 6)** Because of these findings, steps have been taken since the last program review to ensure that the language used throughout the program encourages clarity and comprehension. Lessons have been incorporated into course curriculum that include clarifying confusing test question styles (such as questions using the words “either, neither, except” or “A-B-Both-Neither” style questions.) Occasionally, as the situation requires, some portions of testing are also given 1 on 1 to ensure that questions are well understood.

The ACR program often attracts students with disabilities for whom lower division classes may not be seen as a good fit. The program instructors work closely with Disability Services to ensure that any individual needs are met and that students are given the best possible chance to succeed. This can include any of the typical range of Disability Services accommodations as well as extra 1 on 1 time in the lab with class instructors during open shop time (typically Fridays). The program instructors are committed to student success and will make sure that students are given every opportunity to succeed and grow.

Working with Disability Services

Program instructors work closely with the office of Disability Services and a significant number of students with disabilities move through the program every year. Many students with disabilities see the ACR program as an avenue to a better life that doesn't require the lower division collegiate classes that they may struggle with.

The ACR program is also very popular with “Trade-Act” students and veterans for some of the same reasons. With program timeline options as fast as nine months, many older students find the idea of rejoining the workforce quickly to be very enticing.

Curriculum and Instructional Changes Resulting from Industry and Community Feedback

Auto Collision Repair welcomes feedback from a variety of sources, including students, Industry groups and local businesses. We receive a great deal of feedback from business and industry because students exiting our program must possess the level of skill and knowledge to work for those very businesses. It is critical that the ACR program stay fully current as processes and equipment changes out in industry.

Feedback gathered from course evaluations and informal interviews with past and current students have been used to make curriculum changes (e.g., I-CAR, increased emphasis on specific technical skills). Students often keep in contact and provide essential feedback as to the level of expectations found out in the “real world” of auto collision repair.

Collaboration with colleagues, both from PCC and other institutions, has also provided our program with valuable feedback. Auto Collision Repair instructors regularly engage in professional development activities in order to stay current with standards and practices recommended by local, national and international professional organizations.

Faculty

Quality of Faculty Needed to Meet the Needs of our Program

The current ACR faculty consists of three Auto Collision Repair instructors and one Auto Paint instructor. The greatest strength of the ACR program has been and continues to be the quality of the instructors and the depth of industry experience that they bring to the program. All program instructors have spent many years in private industry working in the disciplines that they teach. This level of experience allows classes to be taught specifically to what students will find in auto collision repair shops when they enter the labor force. Sharing real world experiences, successes, failures and general industry knowledge builds trust and credibility with the program students in addition to passing on those experiences and well-developed hands-on skills to the next generation of technicians.

In addition to the wealth of industry experience brought by the ACR instructors there is also a strong connection to local businesses and employees. These connections have been built over years of working in the industry and are critical to maintaining current and valid instruction. Through the Advisory Committee and personal relationships with shop owners and employees, the ACR team is constantly looking at new production processes and products in order to stay up to date on the constantly changing collision repair industry. Faculty maintain industry certifications like I-CAR and SAE (Society of Automotive Engineers) through continuing education and training. Faculty also maintain manufacturer specific certification on equipment and products used in the PCC auto collision shop as well as government-mandated safety and environmental training and certifications.

The ACR program has a long history of very low faculty turnover. Since the last program review, there has been one retirement from the program. Jim Jeffery retired after 32 years as the Auto Paint instructor. His position has been filled by Tony Yorba, a 20-year industry veteran who is currently in his second year of teaching. There are no retirements planned for the next five years.

Geoff Snook	Department Chair/Instructor
George Warneke	SAC Co-Chair/Instructor
Wally Standley	Instructor/Student club advisor
Tony Yorba	SAC Co-Chair/Instructor

Faculty Diversity

The ACR program continually strives to emphasize cultural competence and a more inclusive learning environment. We recognize that historically our faculty have not necessarily reflected the diversity of our students. The program has a small number of instructors with low turnover and with what is typically a very small hiring pool, it has proven challenging to attract people of color. With that said, the program has slowly become more diverse over the years and is currently at 75% white and 25% Hispanic. Teaching faculty is currently 100% male and this is an area that remains difficult to change. A current I-CAR survey (**appendix 11**) puts total female auto collision technicians at about 2% of the work force;

this number has more than doubled over the last 10 years but remains very low. The ACR program is proud to work towards a change in this area and works hard to attract and retain female students. Current program demographic information (**appendix 9**) puts female program enrollment at 9%.

Instructor Qualifications

Since the last program review, the ACR program instructor qualifications have been updated (Appendix 10). The old qualifications were confusing because they combined Auto Collision Repair Instructor and Auto Body Painting Instructor into one set of qualifications. These are two different types of instructors with similar but different qualifications. Additionally, the related instruction instructor qualifications did not meet the new standards recently put in place by the SAC nor did they meet the high standard for industry competence as decided by the SAC.

Continuing Education and Training

The ACR program faculty work hard to maintain industry certifications and up to date skills and technical knowledge. I-CAR is an important source of continuing industry training and certification. Faculty also work closely with various manufacturers and industry professionals to maintain current and relevant abilities as well as learn new procedures and advancing technologies. Faculty also maintain government mandated safety and environmental training and certifications. In fact, National Emissions Standards for Hazardous Air Pollutants (NESHAP) certification has now been imbedded into the auto paint courses and students leave the program with a valid government NESHAP certification that allows them to legally spray paint in the body shop environment. This is a requirement that has been put in place by the Environmental Protection Agency (EPA) over the course of the last five years.

Facilities and Academic Support

Classroom Space and Technology

The ACR program is based on a mixture of classroom learning and shop-based, hands-on labs. The classroom portions involve interactive lectures using PowerPoint presentations, videos, Smartboards, industry specific computer software and technical props. The classroom setting is the most effective learning environment for students to study theory, terminology and processes. The ACR facility includes two modern classrooms, one of which was added as a result of the last program review. The new classroom has proved invaluable and has had a very positive impact on the program. The previous arrangement did not allow for the use of technical props in the classroom environment for several courses every term and the “borrowed” classroom was typically quite far from the shop facility. This new dedicated classroom has afforded the space needed for some amazing new learning tools, the most prominent of which is the virtual painting system that was acquired. It is a virtual reality system that allows Auto Paint students the chance to practice spraying paint in a virtual environment free of any toxic fumes and without using expensive automotive paint. This system has also proved to be a valuable tool for the recruitment of new students as it is easily portable and makes a memorable impact at community outreach events.

All courses in the ACR program have a maximum class size per instructor of 20 students. The decision was made to limit class size to 20 primarily because of the lab portion of the classes. There is a limited amount of space and equipment available in the collision shop and it was decided that exceeding this number could lead to safety concerns as well as a significant drop in instructional quality. Occasionally the program is a bit flexible and as many as two or three students from the wait list will get added. This makes sense especially when students are trying to move to the next course and it keeps them on the program course pathway.

Auto Collision Repair Shop and Technology

The lab portion of all courses takes place in the ACR shop and incorporates instructor led demonstrations, industry specific equipment, hands-on projects, practice on program owned vehicles, and some actual customer jobs as students progress through the courses. The program needs to stay current on the latest industry computer software, technology and equipment to ensure students’ success in the industry. As a result of the last program review, the shop facility went through a major renovation. The antiquated spray booth was replaced with two premium down-draft booths equipped with full digital controls and the special equipment needed to make use of the most modern and “green” paint technologies including waterborne paint. The spray booths were also equipped with modern supplied air respirators which ensure that students are provided with the most effective respiratory protection available. The collision repair side of the shop also went through a significant renovation and received new laser frame measuring equipment as well as state of the art welding equipment. Learning to use this next generation equipment is instrumental in ensuring program students leave with the skills and abilities required in the modern collision repair shop.

With these improvements, the PCC Auto Collision Repair shop has become a facility where body shop owners and technicians can come to try out new equipment and participate in manufacturer led training events. This has resulted in the ACR program garnering respect and awareness from local businesses in the auto collision repair industry as well as national industry giants like DuPont and Chief. This respect is immediately beneficial to students as the best opportunities for job placement come from those same groups.

Library and Other Resources

ACR students are required to create an I-CAR online account and a significant amount of course homework is done through the I-CAR website. The website contains a wealth of information with a searchable database as well as online textbooks and learning tools for each I-CAR module used throughout the ACR courses.

The campus library is another important resource at the disposal of program students. Some students that may not be able to afford the program textbook can check it out and do their reading and textbook assignments in the library. This has been especially critical to the success of some traditionally underserved minority students.

Clerical, Technical and Administrative Support

The Math, Aviation, Industrial Technology (MAIT) Division staff are very supportive of the ACR program. Division Dean Irene Giustini continues to be instrumental in current changes and ongoing plans for new technology and equipment. Jenny Kirchler, program Administrative Assistant, is always a big help on many projects and a great resource for instructors and students alike. Larisa Felty, the Learning Skills Specialist for the ACR department, is a huge asset to the students and assists them in many ways, from tutoring to advising. She has been a key factor in the success of many program students, especially for those for whom English is not their primary language. The program also has great support for the Cooperative Education courses from Christina Nitsche, Cooperative Education Specialist.

In the repair shop area, tools and equipment are maintained by Mike Avdeef the program's Instructor Support Technician. Mike is also a capable technician and often helps with demonstrations and student questions in addition to keeping the shop running smoothly.

The PCC advising staff has done a good job with up front academic and financial advising. In addition to her duties as Learning Skills Specialist, Larisa Felty also assists program students through the process of admissions, registration and program requirements. One area the program would like to see some change in is communication and program awareness from advisors on other campuses. Progress has been made through career days on those campuses, but ACR program staff would like to see more participation from other campuses in the ACR open house that occurs every spring. The open house is a perfect opportunity to see what the program is all about and why it is a great fit for many students.

Staying Current with the Industry

Advisory Committee

The ACR Advisory Committee's regular meetings are one of the main ways that the ACR program stays in contact with the auto collision repair industry. The committee makes it possible to keep up on industry trends and remain current with technology and equipment requirements. They help identify the needs of the industry so students can be properly prepared for their future careers. Suggestions about curriculum and instructional content have proven instrumental to the PCC ACR program staying at the forefront of the collision industry. By working with and listening to the Advisory Committee, many skills have been identified and sorted by importance to ensure that the program is putting more focus on the skills deemed most valuable by the companies that will be hiring program students. In addition, a concentrated review of the most important skills has been added to the course that precedes the student Co-op class.

The minutes from the last three Advisory Committee meetings can be found in **appendix 12**.

Projected Enrollment

Enrollment levels in the ACR program, like many other programs, have historically been closely tied to the economy. When the economy is doing poorly, enrollment goes up. Conversely, when the economy is doing well, enrollment begins to decrease. Over the last few years as the economy has gotten stronger, the program has seen a decline in enrollment. Regardless of the state of the economy, the ACR program is always looking for new ways to attract students and build awareness of the program. Since the last program review several new marketing opportunities have been developed:

- The ACR program participates in the Early College Career Encounters-Transportation class for high school students.
- The Auto Collision Repair program hosts an annual open house, involving many local businesses and existing students as well as potential new students.
- A new ACR program video that provides more information and highlights of the program is currently in the final stages of production.

In addition to the exciting new venues for program marketing, the ACR team continues to participate in many outreach opportunities year after year, including:

- A booth at the annual Roadster Show at the Portland Expo Center
- A booth at the NW Career Expo at the Oregon Convention Center
- Booths at many local high school career days
- Tours of the Auto Collision Repair shop during Diesel Day
- Tours and demonstrations on Career Technical Opportunity Day
- Give-away ACR program t-shirts and stickers

Selecting and Preparing Students for the Auto Collision Repair Program

The ACR program does not have any problems with accessibility. The program does not require any prerequisites and is often seen as a viable career path option for students that may feel that lower division courses are not a good fit. Many students are surprised to learn that not only can they prepare for a well-paying career in auto collision repair, but they can also earn an ACR Associate of Applied Science Degree. Collision Repair students are strongly encouraged to complete the associate degree in addition to the 1 & 2 year certificates.

Job Placement Data

The ACR program does not have an adequate method of gathering job placement data for current or past students. There is an effort under way to explore some options for tracking this data. One of the ideas being discussed is a post-graduation survey done through the Co-op job posting network. However it gets done, the ACR faculty feel that something needs to be done to allow this information to be captured. Solid employment figures would be a great tool for program marketing and recruitment. In past Program Reviews, employment data was acquired from the Oregon Employment Department. This data was only available for less than 10% of program graduates and was so vague that it ultimately proved un-useful.

Job Outlook

The improving economic conditions are causing some unexpected problems in the auto collision repair industry, most notably, there is a severe shortage of qualified technicians. During the economic downturn, many collision repair businesses cut back and the industry shrank with many technicians retiring or turning out to other industries. Now that the economy has improved, there is an amazing opportunity for collision repair technicians. The ACR faculty field phone calls every week from employers looking for qualified technicians.

Once on the job, auto collision technicians can look forward to a very steady career. Auto collision repair will never be outsourced and journeyman technicians can always find work no matter what the economic

environment. Cars will always be involved in accidents and insurance will pay to repair them.

Approximate entry-level hourly wage in the Portland area ranges from \$12 to \$15 an hour. Approximate mid-tech annual salaries for the area range from \$35,000 to \$40,000; an experienced technician may earn \$40,000 to \$80,000 and up annually. The 2013 I-CAR Snapshot of the Industry report shows that the national average wage for collision technicians is \$53,000 and the top 20% of technicians are making above \$70,000. This compares very favorably to other similar industries. **(Appendix 11)**

National Averages*	
	2013
Collision Repair Technician	\$52,997
Electronics Technician	52,940
Machinery Mechanic	48,690
Tool & Die Maker	48,490
Chemical Technician	46,130
Carpenter (Gen/Maint)	44,520
Heavy Truck Driver	40,360
Medical Lab Technician	39,340
Welder	38,410

**Other trades figures are from the BLS 2012 Report*

Barriers to Degree or Certificate Completion

Some students are not a good fit for the collision repair industry. They may come to that realization during their training at PCC and leave the program. That is probably the natural weeding out process that any vocational program experiences. Some students may get distracted by life and get a job in any field to survive. They most likely do not advance to a level of employment that they would have otherwise if they had finished their training. Some get stuck in low paying dead-end jobs. Some students get lured away by getting a job in the collision repair industry before they complete the program and don't return. They usually have a much slower path to a successful career than a trained and certified technician. This last problem has become much more common over the last two years as the auto collision industry is experiencing a shortage of qualified technicians.



While examining program graduation records last year, some inconsistencies were found. The number of less than 1 Year Certificates awarded does not match up with the number of program graduates. The SAC is working towards a solution and the current theory is that upon switching between Auto Collision Repair and Auto Body Paint Repair that the majors are getting erased. Without the appropriate majors listed for each student, the certificates are not being automatically awarded. As a temporary solution the affected students will be encouraged to fill out the Application for Graduation form to ensure they receive their certificates.

The ACR 2 Year Certificate completion rate also proves occasionally difficult. The problem comes from the final Co-op course requirement. Some students have difficulty finding a collision repair shop willing to allow them to do their 300 hour Co-op requirement. ACR faculty work with local businesses to place these students and will continue to look for ways to encourage students to take these final steps in their course work.

The ACR program has entry points in fall, winter, and spring terms. Some courses are not offered every term. The scheduling is set up to work best for a student entering the program in the fall term. When students enter the program in winter and spring term, they sometimes get out of sync with the flow of the program and have to wait an extra term or two to get the needed course. When this happens, we encourage them to take some of the general education courses that are required for the AAS Degree.

Student Continuing Education

Program graduates have many avenues for continued training, most particularly I-CAR. As an industry that is changing and advancing every year, continued education is critical to success. Program students can earn an I-CAR Pro-level 1 Certification in addition to their PCC certificate or degree. This is an important certification, but it is not the only certification; many technicians opt to go to the next steps which are Pro-level 2 and 3. Auto collision shops typically require journeyman level technicians to maintain that I-CAR certification. Pro-level I-CAR certifications are recognized internationally and are the top credentials in the auto collision repair industry.

There are many amazing opportunities for advancement in auto collision repair. Many technicians find that they are interested in pursuing careers in management or ownership. For these employees, a business degree can be a powerful tool in gaining the backing they need to take that next step in their careers.

Recommendations

The ACR SAC has been very pleased with the improvements over the last 5 years but there are a few things that it would like to see changed and/or updated.

- The fleet of ACR owned shop vehicles needs to be updated, some are starting to show their age.
- The PCC ACR Facebook page needs more continuous attention and updating.
- A method for tracking program graduates and their post-PCC employment is badly needed.
- A method for tracking current program students and making sure that they are finishing the program. (Student retention form)
- I-CAR welding certification. I-CAR offers a special welding certification, faculty is working to meet strict guidelines to be able to offer this.
- The new class space badly needs work to improve acoustics and lighting.

Equipment needs

- 2-3 more Bronze welders.
- A self-piercing riveter is needed.
- More aluminum Tooling

Appendix 1

Embedded Related Instruction

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Appendix 1

SAC: Auto Collision Repair

2015-16 Embedded Related Instruction Review

In response to the Year 7 accreditation recommendation, each program is responsible for reviewing the courses currently approved for embedded related instruction. The review is to ensure:

- That each course which includes one or more elements of Embedded Related Instruction (ERI) has at least one outcome which is strongly and explicitly aligned with the focus area (computation, communication, human relations) in which it offers ERI;
- That the course outcome is strongly and explicitly aligned with the content and the activities that support student learning and acquisition of the focus area of RI;
- That this outcome is assessable;

And also

- That programs do not have an excessive amount of Embedded Related Instruction beyond the minimum hours required

If in the SAC's assessment a course does not meet these requirements, the SAC should indicate the planned revisions to the course.

- Look at Courseleaf, Course Management for ERI details for each course and consult with Sally Earll sally.earll@pcc.edu as needed.
- This form should be submitted to the Curriculum Office no later than **April 1, 2016**
- All course revisions should be submitted to the Curriculum Committee and related certificate revisions to the Degrees and Certificates Committee no later than the **May 2016** committee meetings (see pcc.edu/curriculum for submission deadlines)

Certificate	Course	RI Discipline	Hours	SAC assessment of Embedded RI	Action Taken/Expected
Auto Collision Repair 2-year Cert	AB 100	Computation	27.5	14	
	AB 100	Communication	62	25	
	AB 100	Human Relations	95	35	
	AB 105	Computation	57	27	
	AB 105	Communication	44	37	

Appendix 2

PCC Core Outcomes

Graduates of Portland Community College should be able to:

Communication

Communicate effectively by determining the purpose, audience and context of communication, and respond to feedback to improve clarity, coherence and effectiveness in workplace, community and academic pursuits.

Community and Environmental Responsibility

Apply scientific, cultural and political perspectives to natural and social systems and use an understanding of social change and social action to address the consequences of local and global human activity.

Critical Thinking and Problem Solving

Identify and investigate problems, evaluate information and its sources, and use appropriate methods of reasoning to develop creative and practical solutions to personal, professional and community issues.

Cultural Awareness

Use an understanding of the variations in human culture, perspectives and forms of expression to constructively address issues that arise out of cultural differences in the workplace and community

Professional Competence

Demonstrate and apply the knowledge, skills and attitudes necessary to enter and succeed in a defined profession or advanced academic program

Self-Reflection

Assess, examine and reflect on one's own academic skill, professional competence and personal beliefs and how these impact others.

Appendix 3



P.O. Box 19000 Portland, Oregon 97280-8990

Cooperative Education

Employer Evaluation

Student _____

Supervisor _____

Auto Collision Repair Term: _____

Company _____

LEARNING ASSESSMENT**EVALUATION OF CO-OP STUDENT SHOULD BE BASED ON COMPARISON TO ENTRY LEVEL EMPLOYEES.****Level 1 - Limited****Level 2 - Basic****Level 3 - Advanced****1 2 3 ABILITY TO COMMUNICATE**

- ☐ ☐ ☐ Reading - estimates, repair order, parts lists, instructions
- ☐ ☐ ☐ Writing - parts request, supply lists, supplements
- ☐ ☐ ☐ Speaking - Terminology, appropriate interactions
- ☐ ☐ ☐ Listening - following instructions, ask suitable questions
- ☐ ☐ ☐ Visually - diagrams, using technology to convey ideas

1 2 3 HAS AN UNDERSTANDING OF COMMUNITY & ENVIRONMENTAL RESPONSIBILITY

- ☐ ☐ ☐ Recycling - metals, antifreeze, batteries, paints & thinners
- ☐ ☐ ☐ Hazards - exposure to chemical, safety, shop practices
- ☐ ☐ ☐ Pollution - efficient use of materials, and use issues

1 2 3 DEMONSTRATE CULTURAL AWARENESS

- ☐ ☐ ☐ Cultural and human interactions - working within a team, attitude towards others
- ☐ ☐ ☐ Communicating with team members - mutual respect, acknowledging other opinions

1 2 3 ABILITY TO APPLY CRITICAL THINKING & PROBLEM SOLVING

- ☐ ☐ ☐ Process & repair problems - repair sequences, distinguish relevant from non-relevant data
- ☐ ☐ ☐ Computation - measurements, basic math, basic computer programs
- ☐ ☐ ☐ Utilization of repair data - repair orders, measurement charts, manufacturer's information

1 2 3 EXHIBITS PROFESSIONAL COMPETENCE

- ☐ ☐ ☐ Is on time to work
- ☐ ☐ ☐ Alerts supervisor if absent or late
- ☐ ☐ ☐ Dresses appropriately for job setting
- ☐ ☐ ☐ Uses time effectively
- ☐ ☐ ☐ Adapts to feedback
- ☐ ☐ ☐ Does not endanger self or others
- ☐ ☐ ☐ Professional attitude

TECHNICAL SKILLS ASSESSMENT**EVALUATION OF CO-OP STUDENT SHOULD BE BASED ON COMPARISON TO ENTRY LEVEL EMPLOYEES.****1 2 3**

- ☐ ☐ ☐ Knowledge & use of basic tools
- ☐ ☐ ☐ Personal safety practices - safety glasses, gloves, dust masks, respirators
- ☐ ☐ ☐ Shows continual improvement and speed in completing work
- ☐ ☐ ☐ Exhibits adequate knowledge learned in class to perform tasks
- ☐ ☐ ☐ Uses care with equipment and materials
- ☐ ☐ ☐ Is accurate and careful in work
- ☐ ☐ ☐ Skill in parts removal & replacement
- ☐ ☐ ☐ Skill in labeling and storage of parts & hardware
- ☐ ☐ ☐ Skill in parts alignment

1 2 3

- ☐ ☐ ☐ Skill in panel repair
- ☐ ☐ ☐ Skill in panel rough-out
- ☐ ☐ ☐ Skill in surface preparation
- ☐ ☐ ☐ Skill in finishing of filler
- ☐ ☐ ☐ Skill in frame set up
- ☐ ☐ ☐ Skill in frame measuring
- ☐ ☐ ☐ Weld-on structural parts replacement
- ☐ ☐ ☐ Skill in panel removal
- ☐ ☐ ☐ Skill in panel fitting
- ☐ ☐ ☐ Skill in spot-weld drilling
- ☐ ☐ ☐ Skill in grinding welds

Instructor Use OnlyDid the student meet the objectives? ☐ Yes ☐ No _____Did the student complete their required hours? ☐ Yes ☐ No _____Has this report been discussed with the student? ☐ Yes ☐ No _____

Portland Community College is an Equal Opportunity Employer and committed to a policy of non-discrimination for all people regardless of race, color, religion, sex, age, disability or national origin.

Supervisor Signature _____

Date _____

Appendix 4

Auto Collision Repair Technology Learning Outcomes/Technical Skills Assessment Rubric

Level 1- Limited

Limited demonstration and application of knowledge and skills.

Entry level employee exhibits limited skill and speed, applies few learned skills and knowledge and struggles to perform task (is not developing skills), does not complete task or requires excessive guidance.

Level 2 - Basic

Basic demonstration and application of knowledge and skills.

Entry level employee exhibits basic skill and speed, applies knowledge and uses developing skills to perform task, completes with some guidance.

Level 3 - Advanced

Demonstrates advanced comprehension and is able to apply essential knowledge and skill.

Entry level employee exhibits advanced skill and speed, applies knowledge and uses proficient skills to perform task, completes with little guidance.

Please use this scoring guide when completing the Supervisor Evaluation form. (Administered by Auto Collision Instructor)
Evaluation of Co-op student should be based on comparison to entry level employees.

Student _____

Supervisor _____ Date _____

Appendix 5

Auto Collision Repair Technology

Self-Reflection Cooperative Education Learning Assessment

Student _____

Term _____

Level 1 – Limited Level 2 – Basic Level 3 - Advanced

Self-Reflection – Co-op student is able to apply self-reflection as it pertains to:

1 2 3

- ☐ ☐ ☐ Summaries of shop activities and environment - 8 weekly journal entries

- ☐ ☐ ☐ Assess, examine and reflect on their own professional competence and personal experience and how these impact and relate to the auto collision repair shop environment

- ☐ ☐ ☐ Assess own skills and abilities, monitor progress and motivate self

- ☐ ☐ ☐ Be accountable for actions and their impact on others

- ☐ ☐ ☐ Contribute to the shop community

This assessment is to be completed by the Auto Collision Repair Technology instructor at the completion of the Cooperative Education work experience. Assessment is based on student and instructor interaction, work site visit, and 8 weekly journal entries. Instructor will use Auto Collision Repair Technology Learning Outcomes Assessment Rubric as a scoring guide.

Instructor _____

Date _____

Appendix 6

Assessment Spreadsheet

Double click table to view complete PDF

AUTO COLLISION REPAIR TECHNOLOGY
Learning/Technical Skills Assessment Spreadsheet
Spring 2011

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Average	% of 1's	% of 2's	% of 3's
Met objectives	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes				
Completed 300 hrs	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes				
Report discussed with student	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes				
Total # of Students	15																		
Communication																			
Reading	2	2	1	3	3	2	2	2	2	2	2	2	2	3	3	2.2	7%	67%	27%
Writing	2	2	2	3	3	2	2	3	2	2	3	2	2	3	3	2.4	0%	60%	40%
Speaking	3	3	1	3	3	3	3	3	2	2	3	3	1	3	2	2.5	13%	20%	67%
Listening	2	3	1	2	3	3	2	3	3	3	2	3	1	2	3	2.4	13%	33%	53%
Visually	1	2	1	2	3	3	3	2	2	2	2	3	2	3	3	2.3	13%	47%	40%
Community and Environmental Responsibility																			
Recycling	3	3	2	3	3	3	3	3	3	3	3	3	2	3	2	2.8	0%	20%	80%
Hazards	3	3	2	3	3	3	3	3	3	2	3	3	2	3	2	2.7	0%	27%	73%
Pollution	2	3	2	3	3	3	3	3	3	2	3	3	2	3	2	2.7	0%	33%	67%
Critical Thinking and Problem Solving																			
Process and repair problems	3	2	1	2	3	3	3	2	2	2	3	3	2	2	3	2.4	7%	47%	47%
Computation	3	2	1	2	3	3	3	3	2	2	3	3	2	3	3	2.5	7%	33%	60%
Utilization of repair data	2	2	1	2	3	3	3	3	2	1	3	3	2	3	3	2.4	13%	33%	53%
Professional Competence																			
On time	3	3	3	2	3	3	3	3	3	3	3	3	1	3	2	2.7	7%	13%	80%
Alerts if absent or late	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	2.9	0%	13%	87%
Dresses appropriately	2	3	3	3	3	3	3	3	2	3	3	3	2	3	3	2.8	0%	20%	80%
Uses Time Effectively	2	3	2	2	3	3	3	3	2	2	3	3	1	3	2	2.5	7%	40%	53%
Adapts to feedback	1	3	2	3	3	3	3	3	3	3	3	3	2	3	3	2.7	7%	13%	80%
Does not endanger self or others	2	3	2	3	3	3	3	3	3	3	2	3	2	3	3	2.7	0%	27%	73%
Professional attitude	2	3	2	3	3	3	3	3	3	3	3	3	1	3	3	2.7	7%	13%	80%
Cultural Awareness																			
Cultural and human interactions	1	3	3	3	3	3	3	3	3	3	3	3	2	3	3	2.8	7%	7%	87%
Communicate with team members	3	3	2	3	3	3	3	3	2	3	3	3	1	3	1	2.6	13%	13%	73%
Self-Reflection																			
Shop activities and environment	2	3	2	2	3	3	3	3	2	3	2	3	3	2	2	2.6	0%	40%	60%
Assess, examine and reflect	1	2	1	1	2	2	2	2	3	1	2	2	2	2	1	1.7	33%	60%	7%
Assess skills abilities	2	2	1	1	2	2	2	2	3	1	2	1	1	2	2	1.7	33%	60%	7%
Accountable for actions	1	2	1	2	3	2	2	2	3	1	2	2	1	2	1	1.8	33%	53%	13%
Contribute to shop community	2	2	1	2	2	2	2	2	3	1	2	2	2	2	2	1.9	13%	80%	7%

Level 1=Limited 2=Basic 3=Advanced

Appendix 7

AB 280B Cooperative Education – Seminar Hand-out

2 Credit Hours pass/no pass

To pass AB 280B, you must email George Warneke (george.warneke@pcc.edu) 8 weeks of journal entries. Each Monday I must receive an email with information from the previous week. It can be an attachment or typed into the body of the e-mail. It must include a summary of 1 week of your shop activities (vehicles worked on, tasks performed, any challenges and/or successes, etc.), info about the shop environment (how do the other employees treat you, how do you get along with them, how does the boss treat you, etc.), are your skills increasing (more ability, faster speed, new skills and techniques, etc.), are you part of the shop community (is it fun, are you comfortable in the professional setting, etc.). **Please include what week you are reporting on and how many hours have you worked so far.**

Here is a sample journal entry:

Week 2 (total hours worked so far – 80 hrs.)

This week was a little more fun than the last one. I am starting to get to know Justin and the other techs that I work with. These guys really know there stuff and they like to have fun too, there is a lot of joking between the guys at the shop and they are letting me in on it. I can already see that my abilities and speed are increasing and I'm contributing to the team.

In addition to being a more fun week, it was also a busier week, Justin and I turned out a lot of hours this week. He is letting me work more independently on some of the smaller jobs.

Monday- Removed front bumper, passenger fender and tore down door on 02 Toyota Tacoma
-installed front bumper on Volvo V70R (I struggled a little on this, but learned a lot) -installed fog lights on front bumper of 06 Civic Hybrid

Tuesday- Put 02 Tacoma back together, found a broken tab on front headlight, had to order a new one, waiting on part to finish putting back together
- Cleaned and installed double back tape on moldings for F 250
- Tore down 05 Honda Accord, Rear bumper, Taillights, and fuel door

Wednesday- Removed front bumper on 08 Saturn Outlook
- tore down passenger door on 2002 Ford Ranger
- put 03 Ford Escape back together, Rear hatch, rear door, interior and back glass

Thursday- Repaired front bumper on 05 Honda Odyssey
- installed truck bed on 02 Ranger
- put passenger door together on 02 Ranger
- built front bumper for 02 Toyota Tacoma, installed front bumper and headlights

Friday- Put 05 Honda Accord back together
- built front bumper for 06 Toyota Sienna
- removed rear bumper and hatch on Honda Passport (I made good time on this one)
- pulled rear floor of Honda Passport
- used dent fix machine to raise low spots on Honda Passport floor and bondoed them

Appendix 8

Career Encounters

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Appendix 8

Beaverton School District Early College Students

Career Encounters - Transportation course

(Auto Collision Repair Technology & Auto Body Painting, Diesel Service,
Aviation Maintenance, Aviation Science, Welding)

What is the need?

Beaverton School District: To help alleviate high school overcrowding, BSD has an early release program for seniors and some juniors. To qualify for early release, these students must be on track to graduate. They can leave school at 12 - 1 pm every day. BSD is trying to plug them into college classes at PCC. It is still a challenge to steer students to CTE programs instead of the 4 year degrees. A lot of these students would benefit by having a pathway to CTE careers.

Portland Community College: CTE programs at PCC need a direct pipeline of students from high schools. Auto Collision Repair has realized that most of our students do not enter our program directly from high school. This is most likely the case for other CTE programs.

A G E	15 - 18	19	20	21	22	23	24	25	26	27	28	29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 - 74	
																						total
20 16 01	0	2	6	5	9	5	1	4	3	5	0	3	11	4	5	2	1	3	2	0	1	72

We know a lot of our students spin their wheels for a few years trying to find their way to a career. We try to connect with these students through career events at high schools and PCC campuses, but it is not as successful as we would like.

What was our goal?

To design a course that would connect high school students to CTE programs.

To create a direct pipeline to CTE programs.

To attract BSD early release students to afternoon courses meant to expose them to multiple CTE career pathways at PCC.

What is our plan?

We want to group together related CTE programs into a **Career Encounters** course to showcase those programs. The new course would be an intro and overview of 4 to 5 CTE programs in one **Career Encounters** course. It would be taught as a lecture/lab course. Students would be immersed in our classrooms, shops and labs. They would learn some of the very basic skills and get to participate in some of the fun hands-on activities included in our programs.

Appendix 9

Program Demographics

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1

Program Review Data Profile

Created: summer 2016
Office of Institutional Effectiveness

Notes

Data exclude campus 6.
Data reported were extracted at end-of-term for each term (summer, fall, winter, spring); Data are NOT refreshed past the end-of-term extraction date.

Headcount

Counts the number of students for a defined period of time (E.g. 1 academic year, a term, etc.); students are counted only once regardless of multiple enrollments. Headcount is also referred to as 'unduplicated'.
Campus Level headcounts will not sum to College Wide headcounts.
Students may attend more than one campus and be counted one time per attending campus for Campus Level data.
However, for College Wide data each student will only be counted once regardless of attending multiple campuses.

FTE

Full-time Equivalency; 1 FTE is like a student enrolled full-time for 3 terms (fall, winter, and spring).
The formula to calculate FTE per enrollment is: Number of contact hours multiplied by Number of weeks of instruction, then this product divided by 510

$$\frac{(\# \text{ Contact Hours} \times \# \text{ Weeks})}{510}$$

510

Enrollment

Counts the number of students for a defined period of time (E.g. 1 academic year, etc.); multiple enrollments by a student are counted multiple times.

FTE Enrollment

For every record of enrollment there is a corresponding value of FTE generated by the record.
FTE enrollment sums all the FTE for all records of enrollment within a specified program area.

Demographics

All categories (Gender, Ethnicity, and Age) use a headcount. Data from the student's last enrolled term in an academic year is used.

Data Source

C:\Users\laeggebrecht\Documents\My SAS Files_9.4\ProgramReview.egp

Appendix 10

Instructor Qualifications

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Appendix 10

Instructor Qualification FORM

Use this form to add or change instructor qualifications.

- include the **entire entry** for your SACs current instructor qualifications (including those for Imbedded Related Instruction, if applicable) into the space for "Current Instructor Qualifications," (you should be able to cut and paste this directly from the website)
- include the **entire entry** for the revised set of qualification in the "Proposed Instructor Qualifications" section (please use simple formatting, as our options when posting are limited), and
- please **highlight the changes**, or **put them in a different font color**. (for minor changes especially, highlighting to show clearly what is changing will very much help speed approval!)

Once completed, please forward as an attachment through the approval pathway (see signature page). The signatures can be "virtual" – names typed into the "signature" box will be accepted as valid if received from the signer.

Subject Area Prefix: AB Auto Collision Repair Technology

Reason for change: The old qualifications are confusing because they are a combined Auto Collision Repair Instructor and Auto Body Painting Instructor in one set of qualifications. These are two different types of instructors with similar but different qualifications.

The Related Instruction instructor qualifications do not meet the new standards.

Current Instructor Qualifications: Complete entry for current instructor qualifications, which can be copied from <http://www.pcc.edu/resources/academic/instructor-qualifications/index.html>

Auto Collision Repair/Painting Instructor

Education:

AAS (or higher) in Auto Collision Repair/Painting or a field appropriate to Auto Collision Repair/Painting and teachers preparation coursework is preferred but not required. ASE certification in all areas of instruction is required within first year of hire.

Experience:

Five years current full-time "on the line" technical service in Auto Collision repair with technical knowledge of painting required. Five years recent experience teaching elements of Auto Collision repair/painting and supervisory experience in the auto collision repair/painting industry might be substituted (year for year) for current technical service in auto collision repair

Related Instruction:

Instructors who meet the above requirements are qualified to deliver all of the related instruction in this subject area, as described in the CCOGs for AB 100, 105, 106, 201 and 205. (Approved December 2010)

Approved: June 2010

PCC Instructor Qualification Approval Form v. 5/18/2015

Appendix 11

I-CAR Snapshot of the Industry 2013

SNAPSHOT

of the Collision Repair Industry

COLLISION REPAIR EDUCATION
FOUNDATION
I-CAR

Co-sponsored by **I-CAR**

EXECUTIVE SUMMARY OF THE 2013 SURVEY

BACKGROUND

Previous surveys, conducted every three years, confirmed the need for a continual supply of qualified entry-level technicians, while also showing changes concerning business operations and the collision repair technician workforce.

A similar survey was completed in 2013 to continue monitoring trends and provide data to support school programs for collision repair at all levels.

SAMPLE

An online survey was set up to collect information about both the business environment and the technician workforce. Announcements were made in leading publications, on appropriate websites, and to repair associations inviting collision repair businesses to complete the survey.

Over 500 collision repair businesses responded, representing over 2,300 technicians and a wealth of data.

Even with a first-time electronic survey and a six-year gap since the last study, results still give a current picture of the industry and interesting comparisons to previous years.

BUSINESS STATISTICS

In six years since the last survey was completed, both the economy and the collision repair industry have been through significant changes. The industry has experienced a market size reduction of 3,047 shops (7.0%) to a current count of 40,488 shops, while the size of individual shops has increased.

Small shops (those with annual sales under \$300,000) were almost half of all shops (44.3%) in 1995 and now represent about one of every twelve shops (8.7%). The share of super shops (those with annual sales over \$1 million) has increased from about one in seven shops (15.3%) in 1995 to two-thirds (66.5%) of all shops in 2013.

The overall average for square feet of production space has again grown, more than doubling since 1995. The average number of employees reported has also more than doubled in that same time period. In 1995, one in five shops reported more than six technicians. In 2013, it is now more than one out of every two shops.

Those in business five years or less was one out of every seven (14.2%) in 1995 and one out of every sixteen (6.1%) in 2013, resulting in an increase of the overall average of number of years in business.

Business Statistics - Collision Repair Shops

SURVEY YEAR	1995	1998	2001	2004	2007	2013
Number of Businesses*	45,882	46,427	44,532	44,736	43,535	40,488
Number of Technicians*			178,400	176,500	179,000	173,200
Years in Business	17.3	20.7	21.6	25.7	27.5	29.5
Average Square Feet	5,761	6,537	8,269	9,008	10,034	13,524
Average Number Employees	6.1	7.2	7.7	7.9	8.4	13.3
More than 6 Technicians	20.4%	25.3%	29.7%	32.2%	32.6%	55.9%
Percent of Small Shops	44.3%	35.4%	28.0%	22.4%	14.3%	8.7%
Percent of Large Shops	40.4%	41.0%	45.9%	43.3%	48.6%	24.8%
Percent of Super Shops	15.3%	23.6%	26.1%	34.4%	37.1%	66.5%

* Courtesy of CollisionWeek

This survey was conducted by the Collision Repair Education Foundation.

Appendix 12

Advisory Committee Meeting Minutes

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Call to order 11:59am February 4, 2015 by chair, Paul Ireland

Introductions:

Gratia Minor
Christina Nitsche
Don Estep
James Jeffery
Paul Ireland

Wally Standley
Jason Hennig
Ron Reichen
Michael Avdeef

Tamara Williams
Adam Marques
Jerry Macken
Jim Schweinfurth

Old Business:

Approval of Minutes of 11-12-14 Motion /second and unanimously approved

Advisory Committee scholarship sub-committee

Advisory would still like to move forward with the scholarship idea to help assist students with the I-CAR costs. Anyone willing to help on this committee please feel free to contact Geoff Snook Geoff.snook@pcc.edu or Paul Ireland paul.ireland@NCS-coatings.com

New Business

What's new in the industry

- Edmonds video has come out with a video that shows pulling out dents on aluminum Panels. (Edmonds.com) Aluminum is moving in to the industry and will be pretty predominant. Advisory mentioned that the program will need a clean work area to meet industry standards. Geoff said that he has put in that request to the college for aluminum tools. Chevy is moving new cars to aluminum it is definitely the future of Auto Collision Repair.
- 3.5 VOC Solvent based paint is available which has the same VOC's as water born paint.
- RDN (Repair Driven News) on google real time industries - taking off very well, good information and resource for everyone. A lot of aluminum information can be found there as a resource. www.repairedrivennews.com
- Certifications for Aluminum are coming. The industry is looking to add technicians back into the workforce with the economy back up and the industry is looking for technicians.
- The industry is starting to define different shop classifications within Auto Collision Repair. The industry is growing, expanding and changing into a high tech industry and it is important that PCC stays up with the demands that the industry is requiring. Automakers are using specialized materials for their automobiles. This may be a challenge for PCC when needing to teach students how each manufacturer's repair requirements differ. Some are aluminum welding while others are using rivets. The industry is transitioning from a trade to a skilled profession. The requirements are strict from manufacturers and collision repairers need to protect the brand. At some point there may be a required licensure for the technician. It's a culture shift. Paint - it is important to teach these students that they need to be building skills to be mentors themselves when they graduate. Compensation culture

End