



# Auto Collision Repair Program



# Rock Creek Campus

Career Technical Education Program Review  
Auto Collision Repair Technology  
October, 2011

## **Program Overview**

The curriculum for our program is approved by the National Automotive Training Education Foundation (NATEF), an affiliate of Automotive Service Excellence (ASE), and the Inter-Industry Conference on Auto Collision Repair (ICAR). In order to be certified by NATEF, we must meet strict guidelines that guarantee students receive training and hands-on experience in all the areas necessary to succeed in our industry. In order to maintain certification, our equipment, work areas, safety standards and instructor qualifications must meet tough criteria. Our program will be going through the NATEF recertification process during this school year. This must be done every five years. Our students spend a large percentage of class time reaching levels of competence outlined in the NATEF guidelines.

The Auto Collision Repair Technology (ACR) Program has three objectives that have been and continue to be the basis of our training and educational goals.

The first objective is to prepare our students to be able to obtain a job in the Auto Collision Repair industry at an entry level position. The main thrust of the program is focused on training them to become Auto Collision Repair Technicians and Auto Collision Refinish Technicians. This does not limit them to only these two specific positions, but opens up a vast variety of related fields and levels of these two positions. The completion of our 1 Year and 2 Year Certificates or AAS Degree can lead to a career in these areas:

- ❖ auto body repair helper, mid-tech, or journeyman
- ❖ auto body painting helper, 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

Some students that enroll in our program do so just to have their own hobby shop or are self-employed.

The second objective of the program is to instruct our students on how to become good employees. We are not just training them how to perform the hands-on skills and understand the terminology, technology, and equipment, but we are preparing them to become good employees no matter where they work. We accomplish this partly by having them treat their time at PCC like a job and giving them an environment where they can create good work habits. We assist them with resume/portfolio and job interview skills. We also facilitate the nurturing of leadership and people skills by having them work within team settings in the shop labs and having them rotate team leader rolls.

The third objective of the program is to teach our courses using imbedded related instruction to cultivate a better educated person. From the onset of our program, imbedded instruction has been a working part of the curriculum. In the last few years though, it has been necessary to verify and document the amount and quality of the imbedded related instruction within the courses that make up our program. This task was assigned to our Subject Area Committee (SAC). We 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 our AAS Degree and 2 Year Certificate. The sixth course is our Cooperative Education course. We well exceeded the minimum requirements for the assignment. **(See Appendix A)** The Auto Collision Repair Paint courses were not a required part of the assignment because the paint program is a Less than 1 Year Certificate. **(See Appendix B Listed by Course Name)**

The PCC Auto Collision Repair Program is one of the largest and most comprehensive programs on the west coast. Many auto collision programs have shut down and disappeared over the last several years due to budget cuts, their unwillingness to stay up with the changing industry, and the inability to meet the needs of the students. The use of technology and new alloys of high strength steels during the design and manufacturing of vehicles has increased rapidly over

the last five years and will continue to increase over the next five years and beyond. Not too long ago, auto collision technical repair information was a highly guarded secret among each individual manufacturer. The flow of technical information from the vehicle manufacturers has finally changed in the last few years. Now there is a flow of information that is being shared with our industry that allows us to train technicians to repair vehicles to manufacturer's recommendations. This requires new and updated computer programs, leading edge technology and equipment. We have been willing and able to stay up with some of the new advances, but we will need to do more. We will address these items later in this report.

The last Program Review that was done five years ago was not electronically archived and paper files from it have not been found. Due to the retirement of the two instructors that were involved with the previous review, we did not find much information on what changes were recommended as a result of the review. We have, however, been working on review and significant updating of our program over the last three years since they retired. Improvements include, updating our curriculum, changes in faculty and support staff, and improvements in our shop and equipment. Because of assessments and tracking that PCC and our program have implemented, we are more accountable for what we do and for the success of our students. Most of these changes will be covered in this report.

### **Needs of Students and the Community**

We have always had a diverse population at PCC and within the ACR program. There are always multiple age groups, ethnic groups, and even gender groups enrolled in our program. We intentionally build our curriculum and instructional delivery styles to appeal to 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 C)** This can have some teaching challenges. These types of students have possible problems reading, writing, speaking, and comprehending technical terms and processes. We have documented these challenges in our Learning/Technical Skills Assessments. **(See Appendix D)** We will discuss our findings and solutions that were put into action to address these issues, in a later section of this report.

Enrollment levels in the ACR program, like many other programs, have been closely tied to the economy. When the economy in our country is doing well,

enrollment may be down. Conversely, when the economy is doing poorly, enrollment begins to increase. Over the last five years, we have been trying to do a better job at marketing consistently even in the years where the enrollment is strong. We realized that this will help enrollment numbers when the economy finally turns around and generally enrollment goes back down. We find ourselves at a point where our class sizes are at maximum capacity and we have waiting lists to get into the program. That is a relatively new problem for our department to deal with. Much like the rest of PCC we have an enrollment explosion. **(See Appendix E)** With the forecast for the economy of recovering slowly, we will most likely have continued high enrollment in our program. Even with this record enrollment, our program is continuing our marketing efforts to make sure that we will have desirable enrollment numbers even when the economy recovers.

By annually engaging in a healthy amount of marketing to a diverse population, we continually have a very diverse population enrolled in our program. Some of our program marketing efforts that we currently are participating in are:

- ❖ a booth at the annual Roadster Show
- ❖ a booth at the annual Concourse Car Show in Forest Grove
- ❖ a booth at the NW Career Expo
- ❖ we participate at local High School career days
- ❖ we participate at the Latino College Fair at Forest Grove High School
- ❖ we give tours on Diesel Day
- ❖ we give tours and demonstrations on Career Technical Opportunity Day
- ❖ our Cooperative Education Program and field trips to body shops promote our program to the industry
- ❖ we have given tours and presentations to local car clubs
- ❖ we give out PCC ACR program t-shirts and stickers
- ❖ we produced a ACR program video that explains our program

At this point in time we have set a maximum class size per instructor of 20 students. We have decided on this class size because of safety concerns, instructional space, instructional quality, and available equipment. Occasionally we will be flexible with that number. For example, if there are just two on the waiting list for a particular course, we will accommodate them and let them enroll. We don't want them to get left out of the flow of the program course pathway.

We do not have a problem with accessibility to our program. There are no prerequisites to get into the PCC Auto Collision Repair Program. Enrollment in the ACR program is a very viable career path option for those students for whom the 4 year college degree is not a good fit, as well as those that could complete a 4 year degree. We continually encourage our students to complete not only the Less than 1 Year and 2 Year Certificates, but also to complete the ACR Associates of Applied Science Degree.

## **Faculty**

The current ACR faculty consists of 3 Auto Collision Repair Instructors plus one adjunct instructor every spring term. We add an extra course that term to lessen the bottleneck of students going through the program. We also have 1 Auto Collision Repair Paint Instructor. The strength of our program has been and continues to be the quality of our instructors. We are not just teaching information from a text book and giving tests to see if they remembered that info. Our instructors share experiences from working in the industry and examples of how the industry works. We share successes, failures, and industry knowledge with our students. We pass on our experience and hands-on skills to a new generation of Auto Collision Repair Technicians. We value this kind of instructor. These are the types of instructors that it takes to meet the needs of our program and to properly prepare students for the industry.

Our department has not had a history of faculty turnover. Usually an instructor will teach for many years. Since the last program review, we have had two instructors retire from the ACR program. Steve White worked 32 years as an ACR instructor and Hal Carman 23 years as an ACR instructor before retiring. Geoff Snook, our current Department Chair/Instructor, has been an ACR instructor here for 10 years. George Warneke, our current SAC Chair/Instructor, was hired to replace Steve White and is in his 4<sup>th</sup> year of teaching. Wally Standly, who was hired to take Hal Carman's position, is in his 2<sup>nd</sup> full year of teaching. Jim Jeffery, our current Paint Instructor, has been an instructor in the ACR program for nearly 30 years. He is making plans to retire in the near future.

The ACR program used to have a night class program for the Auto Collision Repair and the Auto Collision Repair Painting entry courses. These students would then enroll in the day time courses to complete the remainder of the program. It took

two terms to equal the same day time 1 term course because they were not 12 credit courses. The night program consisted of 2 adjunct instructors. A few years ago, during PCC's budget problems, we made the decision to cut the night program and inactivate the courses. Except for the fact that it took away the evening options for our students, it was a good decision. It is a challenge to get good candidates for any of our open positions in the ACR program. We never have very many applicants when we have a job posting because in the Auto Collision industry, most technicians make a very good living while working in the industry. It is usually a big step back in pay when taking on the role as an instructor and they really have to have a love of teaching to take that step. If they are not doing very well in the industry, then they probably are not the best candidate for sharing a wealth of knowledge from the industry. On the other hand, the adjunct instructors could make great wages to add to their existing pay in the industry. The main problem with that though, is that faculty hired to teach the night program were working an 8 to 10 hour day job and then trying to teach a night class. It was hard to find a good instructor, and once found they would usually get burned out after a couple of terms and we would have to start all over breaking in a new one. The other drawback of the night program was the quality of the student that would come to the day program from the night program. We could see that they did not have the same knowledge and skill level that the day time students had at the same point when they joined the day courses. After studying the problem, we realized that the night program became more of a hobby shop because the instructors rarely went into the class room to teach and did not fully follow the curriculum. There was little oversight of the night program because they were on campus after normal working hours. The department chair and division dean during those years very loosely monitored the night program.

It is very hard to get consistency in our program from the use of very many part time instructors. We need the long term commitment of a full time faculty instructor to help develop and maintain up-to-date curriculum.

Because of the small number of instructors in our program, low turnover, and usually a small hiring pool, we have only a small impact on the diversity and cultural competency of the institution. However, we do work very closely with a very diverse population of students in our program. Our instructors come from an industry that is very diverse and we are very diverse in many ways ourselves. We are very aware of the different cultures and many different ethnic groups that

make up our classes and are conscious of how that can affect the needs of our students. One of the great benefits of our class structure is that many times our students work in teams or with partners in our class room setting and hands-on shop labs. They do not choose their team members, so we are able to teach them how to get along and value each other's differences. This helps prepare them for their career in a very diverse industry where teamwork is essential.

Professional development activities are how our instructors stay current on the latest technology, technical information, and techniques. The 4 instructors in the ACR Program are all ASE certified. We must pass recertification tests every 5 years. We also all have various ICAR certifications. This past year for example, 3 out of the 4 of us completed 20 hours each of ICAR training. Each of us must accomplish 20 hours of professional development every year as part of our NATEF certification. We were able to update some of our course information based on the latest technical information from those ICAR courses. We also take yearly OSHA and safety training.

Even though our instructors have worked hard to stay current on industry technology, our real strength in recent history has been the replacement of our retired instructors. They were both very good instructors, but with the hiring of two new instructors came significant changes to our program and curriculum. Over the last 3 years, we have revamped and updated the 6 courses, 12 credits each, which make up the Auto Collision Repair Technology 2 Year Certificate. We have taken most of the courses from being based on old outdated information and techniques delivered on overhead mylars, to new updated information and techniques taught from power point presentations, videos, Smartboards, and fresh from the industry skills. We did keep true to our Course Outcomes Guides as we did this work. We also phased in a new updated text book (2009). One of our next projects is to bring our ACR Paint Program up to date by redeveloping the 3 courses that are 12 credits each. This needs to include Waterborne Paint technology, new paint booth technology, the latest technical information and current industry paint shop techniques.

## **Facilities and Support**

The ACR Program is based on a mixture of classroom and shop hands-on labs. The classroom involves interactive lectures using power point presentations, videos, Smartboards, industry specific computer software, and technical props. The classroom setting is the most successful learning environment for our students to study theory, terminology, and processes. We are fortunate to have a classroom just outside the door of the body shop that we use from 7:00-8:30AM each day for one instructor of the morning courses that run from 7:00-12:20pm. We also have the same room from 12:30-2:00PM each day for one instructor of the afternoon courses that run from 12:30-6:00PM. The second instructor in both the morning and afternoon shifts both have a different classroom each term scheduled for their students. These classrooms are always a lot further away from the shop and sometimes in a different building. This makes it very difficult, if not impossible, to use technical props in those classrooms. The shop lab environment is sometimes very noisy to do some of the teaching. We have future plans to turn a room in the body shop area into a working lab classroom. This would free up classrooms for other programs.

The shop hands-on labs include demonstrations, computers with industry specific software on them, hands-on industry mock-up projects, the ACR fleet of vehicles to work on, and a variety of Auto Collision Repair equipment. Our program needs to stay current on the latest industry computer software, technology, and equipment to make our student successful in the industry. We would like to keep on the leading edge of technology and be the showcase for new equipment. We have future plans of replacing our old paint booth with new paint booth technology that is much more sustainable and green. We would like to buy the new Virtual Paint System that allows students to practice painting without using expensive paint materials and does not expose them to hazardous environments. We are interested in new resistance welding equipment that allows the user to know vehicle specific info about the special metals used on the vehicle and allows the technician to document all welds. We would like to be the facility where body shop owners can come to try out new equipment. Usually body shop owners do not want to go to a competitor's shop to see demonstrations, so we would be the perfect place for manufacturers to showcase new equipment.

The ACR students use the library for supplemental information to enhance their learning. Some of our students that can not afford the program textbook, check it out and do their reading and textbook assignments in the library.

From top to bottom, the MMT Division staff has been very supportive of our program. Our Division Dean, Irene Giustini, continues to be very helpful and instrumental with current changes and our ongoing plans for new technology and equipment. Sandy Reeds, our Administrative Assistant, is always a big help on many projects and a great resource to the instructors and students alike. Gratia Minor, the Learning Skills Specialist for our 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 of our students, especially for those whom English is their second language. Last year we were able to hire a support staff member for our tool room at a higher level to match what some of the other CTE programs have had success with. Mike Avdeef, our new Instructional Support Technician, has worked out well and gives our instructors some flexibility when teaching large classes. He also has worked very hard over the summer on changes that we have made in the body shop. A key project has been refurbishing and totally reconfiguring our tool room. This helped both the instructors and students. We have also had great support of our Cooperative Education courses from Tamara Williams, Cooperative Education Specialist.

As far as we know, the PCC advising staff has done a good job with up front academic advising. We also rely on Gratia Minor to assist our students through the process of admissions, registration, and knowing program requirements. We would like to find a way to have more communication about our program with all advisors at all campuses. How can they advise students about a certain program if they don't know much about it? We wish there were planned open houses for CTE programs where advisors from all campuses would come learn about the program and leave with information (in our case, a DVD about our program to show potential students) to share with students trying to find direction.

The Office of Disability Services has done a nice job working and helping us accommodate students with disabilities. Overall, student services have done an outstanding job dealing with the large increase in student population.

The ACR program has an entry point in the fall, winter, and spring terms. Some of our other 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 more of the general education courses that are required for the AAS Degree. We have studied this problem for years and changes have been made. The current scheduling seems to be the best we can do with the current number of instructors.

### **Career and Technical Education (CTE) Curriculum**

The ACR Advisory Committee is one of the main ways we stay in contact with our industry. Through them, we are able to keep up on industry trends and remain current with technology and equipment requirements. They help us to see the needs of the industry so we can properly prepare our students. We are very attentive to their suggestions about curriculum and instructional content and have made changes based on their input. By working with and listening to the advisory committee, we were able to identify 4 skills that they thought needed to have more focus on in our program. Now we have included a concentrated review of those skills in our course that precedes their Cooperative work experience.

Our SAC was given the task of aligning the ACR Degree and Certificate student learning outcomes with the PCC Core Outcomes. **(See Appendix F)** We were also given the task of creating and implementing a Learning Assessment Plan. **(See Appendix G and Appendix H)** In addition we had to create a Technical Skills assessment program as a requirement of our program receiving Perkin's Funds. **(See Appendix D)**

We chose to rewrite our student learning outcomes for all of our courses **(See Appendix I Listed by Course Name)** so that they would align with all of the 6 PCC Core Outcomes: Communication, Community and Environmental Responsibilities, Critical Thinking and Problem Solving, Cultural Awareness, Professional Competence, and Self-reflection. Then we mapped them to the ACR Degree and Certificate student learning outcomes. Next we combined the two assessment projects into one comprehensive end of program assessment and put it into practice.

## **Degree and Certificate Student Outcomes**

The following is a list of our degree and certificate student learning outcomes, followed by summarized results of the assessments of these outcomes, and examples of assessment-driven changes.

### **AB - Auto Collision Repair Technology Outcomes**

#### **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.

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## 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

Our Learning Assessment project went through a peer review process this last summer. We were praised for our efforts, implementation, and changes that were made as a result of the outcomes of the project. **(See Appendix J)** Our SAC received an award for the work.

Our Technical Skills Assessment project was turned in for approval from the Oregon Department of Education. We recently got a nice response back from them for a job well done and approval of our plan.

**Learning/Technical Skill Assessment  
Auto Collision Repair Technology  
Portland Community College - Rock Creek Campus**

**Reliability**

Our Auto Collision Repair Technology Program (ACR) had two types of assessments for which to develop scoring materials. To accomplish this large task, we combined the two projects into one comprehensive end of program assessment. As part of our Learning Assessment, we assessed the six PCC Core Outcomes of our ACR 2 Year Certificate & Associate of Applied Science Degree (AAS) (**see Appendix F**). We also assessed our students' subject area specific hands-on and shop practice skills to fulfill our Technical Skills Assessment, as our program is a beneficiary of Perkins funding. There were many crossover Learning Assessment and Technical Skills Assessment areas.

The assessment tool (**see Appendix K**) 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 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 our 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 areas.

As part of the Cooperative Education contract, the employers agree to assess the degree to which students have met the outcomes and skills required of the certificate or degree. Our Subject Area Committee (SAC) chose 3 levels of achievement, as opposed to 4 or 5, so that the assessment was more cut and dry.

This way the employer was not stuck trying to decide on the middle areas of scoring. This also made the findings easier to interpret, more useful, and consistent. As a result, there are less gray areas of scoring making the assessment very reliable.

The assessment tool is based on a rubric that we have developed (**see Appendix L**). The rubric describes the 3 levels of achievement 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 (George Warneke) who is the only instructor for this Cooperative Education course. For reliability and consistency, the two documents are read and signed by the employer/supervisor and discussed with the instructor prior to completing the assessment. 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 (George Warneke) (**see Appendix M**). 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.

We were able to create a scoring guide that both reflected a holistic score and an analytic score. For program assessment, the information gathered from all

students is entered into our 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 department for consideration of program improvement (**see Appendix N**). 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 Portland Community College Auto Collision Repair Technology (ACR) program's curriculum is approved by the National Automotive Training Education Foundation (NATEF), an affiliate of Automotive Service Excellence (ASE), and the Inter-Industry Conference on Auto Collision Repair (ICAR). In order to be certified by NATEF, we must meet strict guidelines that guarantee students receive training and hands-on experience in all the areas necessary to succeed in our industry. In order to maintain certification, our equipment, work areas, safety standards and instructor qualifications must meet tough criteria. Our students spend a large percentage of class time reaching levels of competence outlined in the NATEF guidelines. This assessment project was developed based on those guidelines and industry standards.

The 15 student pilot run of this Technical Skills Assessment was very successful. The scores were predictable based on classroom and shop lab grades. The student strengths and weaknesses closely mirrored the results of the assessment.

This assessment program was developed, evaluated and approved by the Portland Community College Auto Collision Repair Technology (ACR) program's Subject Area Committee (SAC).

This assessment program was evaluated and approved by the Portland Community College Auto Collision Repair Technology (ACR) program's industry Advisory Committee.

## **Student Proficiency Level**

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 L**). 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 our Subject Area Committee (SAC), that our proficiency level should be set at the level 2 – Basic, as per our rubric scoring guide. Individual student scores of 1 in any category could trigger further evaluation of the student’s abilities in this area, and could contribute to a non-passing grade for AB280A or AB280B. Our goal is a score of 2.0 (Basic demonstration and application of knowledge and skills) and above for any and all individual outcomes.

Our SAC is excited with the assessment tools that we have developed and we are thrilled with the overall results revealed by this process. Average scores in 10 out of 11 outcome categories and 12 out of 15 individual student averages were exceptional! (**See Appendix N**) The one outcome category that we were not happy with 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 we would prefer. Two were under 2.0 and one was right at a 2.0 score. Even with the eventual improvement in the category of Self-Reflection, which would bring these three scores up, there are other areas of concern for these three students. When examining the three students, there is a common thread. They are non-native speakers and English is the second and even third language for these students.

## **Improvement to Teaching and Program**

There are definitely areas for improvement and plans to address these are as follows.

Self-Reflection outcomes: Scores indicate a lack of communicating self-reflection in the written form.

Students currently 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. We have been lacking on setting the expectations for the conclusion paragraph that is part of the technical article summaries and showing examples and expectations for the daily journal entries.

The SAC has agreed to implement the following strategies to help students develop this ability:

- 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 hand-out that explains what is expected to be included in the 8 weeks of daily journal entries and a sample journal entry (**see Appendix O**).

Learning/Technical Skills outcomes for individual students: Scores indicate that 3 students had a total average of score that was right at or below our set goal.

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. Results from the assessment tools reveal that overall we are meeting and exceeding the needs of most of these types of students with the assistance of our Technical Learning Skills Specialist. We can do better though with a few individual students.

The SAC has 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.

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

### **Job Placement Data**

Our program and industry does not have an adequate method of gathering job placement data of our students. We are exploring ways to track that data. Some ideas are to have opportunities for former students to volunteer that info via an ACR Facebook page that our program would to engage in. We are trying to send out a survey through our Cooperative Education job posting network.

Here is all we know about a subset of ACR 2009-10 graduates. This is a subset because this only represents students who provided PCC their SSNs and who are employed in Oregon for an entity that reports to the State of Oregon Employment Department. Thus, graduates who are self-employed, in the military, and or working outside of Oregon are excluded. This data does not indicate if the graduates are working in a position directly (or even indirectly) related to their degree - only that wage records were reported to the state.

Of the 12 2009-10 Auto Body Painting graduates who fit the above criteria:

- \* 2 continued their education after graduating from PCC
- \* Of the remaining, all were employed in some capacity the following year with a median wage of \$12.46
- \* 70% were employed full-time at least four months of that year
- \* 30% (also counted in the above 70%) were employed full-time the entire year

Of the 8 2009-10 Auto Collision Repair Technician graduates who fit the above criteria:

- \* none had continued their education after PCC

- \* all were employed in some capacity with a median wage of \$13.13
- \* 62.5% were employed full-time at least four months of that year
- \* 37.5% (also counted in the above 62.5%) were employed full-time the entire year

Approximate entry-level hourly wage in the Portland area ranges from \$10 to \$12 an hour. Approximate mid-tech annual salaries in the Portland area range from \$25,000 to \$35,000; an experienced technician may earn \$35,000 to \$80,000 and up annually.

Job Outlook: The changing economic conditions seem to have less of an effect on the auto collision industry. During economic downturn, minor repairs to damaged vehicles can be delayed, but any major problems must be fixed for the vehicle to remain safe and functional. When the economy improves, there will be a shortage of qualified collision repair technicians. Our industry is an aging workforce with many older technicians retiring and there is a gap between the older experienced workers and a younger generation. There will be an additional increased demand due to the changing bodies of automobiles, which use lighter weight high-strength steels and plastics that are more prone to damage in a collision. Auto collision technicians never have to worry about their jobs being outsourced. Layoffs of experienced and well trained technicians are not common. Those with formal training in Auto Collision Repair have the best opportunities before them. There is always a well-paying job for any trained and talented technician.

### **Barriers to Degree or Certificate Completion**

Some students are not the right fit for the collision repair industry. They may come to that realization during their training here and leave the program. That is probably the natural weeding out process that any vocational program experiences. Other students 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 of our students get lured away by our industry itself 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 the well trained technician.

While examining our graduation records last year, we realized that there was something wrong with the ACR Less than 1 Year Certificate completion. Approximately 90%-95% of ACR students finish the three courses that make up that certificate, and graduation records did not support this fact. We quickly realized that we had not been having students fill out the Application for Graduation form. Now we have the students that qualify fill out the forms in class and we send them in as a group. This has dramatically changed the graduation records for the Less than 1 Year Certificate. **(See Appendix P)** The ACR Paint program has been doing that for years and as a result has had good completion rates for the ACR Paint Less than 1 Year Certificate throughout the years. The ACR 2 Year Certificate completion rate suffered also, although it is better. It has a problem because some students have a hard time finding a body shop willing agree to let them do their 300 hours of Cooperative Education work experience. That is the last course in the ACR 2 Year Certificate. We are working with shops to ease this problem, but it takes a lot of time to promote that part of the program to additional shops across the Portland Metro area. Graduation numbers for the ACR Associates of Applied Science Degree are very low too. We are working hard to help students accomplish this endeavor.

### **Other Changes to Our Program**

There have been many changes and improvements to the Auto Collision Repair Technology Program over the last 5 years. The following are additional changes that have not yet been addressed in this report.

We have added new content into some courses to enhance existing subject areas. For example, we are training our students about teamwork with new information about “Team Concepts”, training and certification on our new two-post lift, and new information on quality inspections called “Commitment to Quality”.

We have created a set of 3 large posters displaying the photos and names of auto collision repair tools and equipment. They are hanging in our classroom and next to the shop tool room checkout window. In addition, we have made small handouts out of the same posters to be given to the students in our first term course to study. Tool names and technical terms do not translate well into different languages, so this has been a huge benefit to students. This not only helps the students for whom English is not their native language, but also helps the students that have never been exposed to tools before.

We have produced certificates of completion for 10 subject areas. Each subject area certificate of completion includes a description of the knowledge and skills learned in that subject. These are earned by the students and used in a portfolio that we assist them with. They are in addition to their certificates and degree that they could receive at the end of the program. These additional certificates of completion help a potential employer know what was included in the students training.

We assist our ACR students to obtain an industry ASE Refrigerant Recovery & Recycling Certificate and Fusor Adhesive Training Certificate. In ACR Painting we assist them in achieving an industry EPA Rule 40 Part 63 Painter Requirements Certificate.

As a requirement of applying for an industry grant (unfortunately we did not win) to help pay for our paint booth project, we produced a 10 minute DVD that explains and promotes the ACR Program.

We created a newsletter, the "PCC Auto Collision News", that we send to all of our ACR Advisory Committee members bi-annually.

We have purchased some new equipment over the last few years: Chief Velocity Measuring System, Rotary two-post lift, Resistance welder, Painters Fresh Air System, Trash compactor, Tram Gauge, and a 47inch flat screen monitor for equipment software demonstrations.

## **Recommendations**

Recommendations from the ACR Subject Area Committee are:

To continue to proceed forward with our Paint Booth/New Shop Classroom Project, purchase of the Virtual Paint System, purchase of leading edge resistance welder, work on updating our aging fleet of shop vehicles, develop our Facebook page, update our PCC ACR webpage, complete our industry shop survey, and continue to have body shop visits to promote our program and Cooperative work experience program.

## **Index of Appendices**

**Appendix A – Template for Related Instruction in Certificates**

**Appendix B - Imbedded Related Instruction Appendixes Listed by Course Name**

**Appendix C - Race-Ethnicity Distribution of PCC Students Enrolled in AB Courses**

**Appendix D - Technical Skills Assessment**

**Appendix E - Auto Collision Repair Technology Enrollment History**

**Appendix F - PCC Core Outcomes**

**Appendix G - Learning Assessment Plan**

**Appendix H - Annual Report for Assessment of Outcomes**

**Appendix I - Course Outcomes Listed by Course Name**

**Appendix J - Learning Assessment Peer Review**

**Appendix K - Cooperative Education Employer Evaluation**

**Appendix L - ACR Learning Outcomes/Technical Skills Assessment Rubric**

**Appendix M- ACR Self-Reflection Cooperative Education Learning Assessment**

**Appendix N - ACR Learning/Technical Skills Assessment Spreadsheet**

**Appendix O - AB280B Cooperative Education – Seminar hand-out**

**Appendix P - Auto Collision Repair Technology Graduation Records Spread Sheet**

## Appendix A

### Template for Related Instruction in Certificates

<b>61 to 108 credits</b>		<b>Auto Collision Repair Technology</b>	Related instruction						
		Enter course info in light yellow areas (totals will be automatically calculated)							
		Hours in:							
Subject Code	Course Number	Course Title	Credits	Hours	Computational	Communication	Human Relation	<b>Total RI</b>	
BKT	101	Basket Weaving Basics	4	120	6	12	8	<b>26</b>	
<b>courses used for embedded related instruction</b>			12	360				<i>No RI</i>	
AB	100	Auto Body Basic Skills	12	360	27.50	62.00	95.00		
AB	105	Frame Analysis & Repair	12	360	57.00	44.00	120.00		
AB	106	Panel Repair	12	360	32.00	24.00	160.00		
AB	201	Panel Replacement	12	360	30.00	28.00	140.00		
AB	205	Technical Skills	12	360	98.00	64.00	126.00		
AB	280A	Co-op Work Experience	10	300					
AB	280B	Co-op Work Experience	2	60					
<b>courses used for stand-alone related instruction</b>				0				<i>No RI</i>	
								<i>No RI</i>	
<b>Totals</b>			<b>84</b>	<b>2520</b>	<b>244.50</b>	<b>222.00</b>	<b>641.00</b>	<b>0.00</b>	
Minimum for 2 yr certificate:						96.00	96.00	96.00	<b>480.00</b>
Remaining to meet Min. Requirement:						0.00	0.00	0.00	<b>480.00</b>

	YES	NO
All courses identified as embedded related instruction are approved by the curriculum committee for RI?	yes	
<a href="#">Related instruction instructor qualification forms are filed with the VP Academic &amp; Student Affairs?</a>	yes	

If you answered no to either question visit the related instruction website to find details about these requirements.

[Related Instruction Overview | PCC](#)

for assistance contact: sally.earl@pcc.edu or 971.722.7812

## **Appendix B**

### **Imbedded Related Instruction Appendices by Course Name**

#### **AB 100 Basic Skills - Related Instruction**

##### **Computation**

Hours: 27.5

- writing collision damage estimates that include adding, subtracting, and multiplying for parts and materials costs, labor calculations, and overlapping operations.
- measuring voltage and resistance within an electrical circuit.
- determining fastener sizes in both metric and fractional configurations.
- converting fraction to metric sizes to determine diameter and thread pitch for bolts.
- measuring bolt sizes using the metric system and determining bolt strength designations using charts and graphs.
- working with ratios and proportion in determining the content of anti-freeze to water in the automotive cooling system.
- measuring metal thickness (gage), wire speed rates, voltage settings during welding.
- laying out and measuring dimensions for shop lab projects.
- determining torque measurements for bolt tightening operations.

##### **Communication**

Hours: 62 hrs

- writing collision damage estimates using collision estimating guides that include parts descriptions, repair procedures, included and non-included operations.
- required reading of 411 pages in the text book “Auto Body Repair Technology”
- answering chapter review and ASE style questions and students reading some of those answers aloud in class.
- presenting oral evaluations of any challenges and/or problems or items learned that they experienced from shop labs from the previous day.
- students explain technical terminology definitions when called on during classroom time or within their shop lab team.

##### **Human Relations**

Hours: 95

- students learn about team concepts and cultural awareness through class room presentations and dialogue
- students are required to function as a contributing member of a team or group during parts replacement and welding activities.
- they have to work together to compile both written and oral diagnostic evaluations and come to agreement upon the proper sequence and method of replacement or repair of various automotive collision related projects.

- students must coordinate and cooperate in the set-up and use of equipment.
- because of the diversity of students within the program, they must learn to work with fellow classmates of different race, gender and ethnicity.
- they must also learn to communicate with team members using English as the primary language.
- team building competency will include instruction based upon the experience of the instructor working within the team environment used within the auto collision repair industry.

## **AB 105 Frame Analysis & Repair - Related Instruction**

### **Computation**

Hours: 57

- the extensive study of steering, suspension and wheel alignment geometry angles as it pertains to Camber, Caster, Toe, Steering Axis Inclination and Included Angle, Thrust Angle and Turning Radius.
- learning how to read the geometry angles in degrees and decimal points.
- the adding, subtracting and dividing of those geometry angle degrees.
- determining torque measurements and using them in the tightening operations of the steering and suspension components and wheel lug nuts.
- the study of the metric measurements and the use of them with a metric tape measure, tram gauge measurements, the Universal Measuring System and Chief Velocity Computerized Laser Measuring System.
- the reading of metric frame measurements on factory specification charts.
- the addition, subtraction and division of metric measurements.
- the three dimensional measuring of a vehicle's Datum Plane (for height), Centerline (for width), and Zero Point (for length).
- the determining of Vector angles for frame pulling chains, anchoring chains and swing chains.
- the reading of hydraulic P.S.I. on pulling equipment and converting to Pressure in Tons.
- understanding and working with measurement tolerances.

### **Communication**

Hours: 44

- writing collision damage estimates using collision estimating guides that include parts descriptions, repair procedures, included and non-included operations.
- required reading of 87 pages in the text book "Auto Body Repair Technology"
- 
- answering chapter review and ASE style questions and students reading some of those answers aloud in class.
- Reading six technical articles (22 pages) and writing a one page summary for each article.
- presenting oral evaluations of any challenges and/or problems or items learned that they experienced from shop labs from the previous day.

- students explain technical terminology definitions when called on during classroom time or within their shop lab team.

### **Human Relations**

Hours: 120

- students learn about team concepts and cultural awareness through class room presentations and dialogue
- students are placed on small teams and are expected to function as a contributing member of the team throughout the term.
- team leaders are rotated from day to day.
- they must work together to arrive at an oral diagnostic evaluation and agree on the proper repair plan.
- team members are expected to assist each other to fully understand the shop labs that they work on through verbal, written, and drawing methods of communication.
- students must coordinate and cooperate in the set-up and use of equipment.
- they learn how to treat the class as if they were employed at a job through respect of others, respect of tools, and respect of time.
- because of the diversity of students within the program, they must learn to work with fellow classmates of different race, gender and ethnicity.
- they must also learn to communicate with team members using English as the primary language.
- team building competency will include instruction based upon the experience of the instructor working within the team environment used within the auto collision repair industry.

### **AB 106 Panel Repair - Related Instruction**

#### **Computation**

Hours: 32

- students will become proficient at estimating the amount of plastic filler that is needed to repair the damaged panel they are working on. The use of ratios as it applies to the mixing of plastic filler.
- determine the correct grit number of sand paper and the order of their use that is needed to prepare the surface for top coat application.
- write collision estimates that include adding, subtracting, and multiplying for parts and materials costs, labor calculations, and overlapping operations.

#### **Communication**

Hours: 24

- writing collision damage estimates using collision estimating guides that include parts descriptions, repair procedures, included and non-included operations.

- required reading of 30 pages in the text book “Auto Body Repair Technology”
- answering chapter review and ASE style questions and students reading some of those answers aloud in class.
- students will fill out safety sheets and write a repair plan.
- presenting oral evaluations of any challenges and/or problems or items learned that they experienced from shop labs from the previous day.
- students explain technical terminology definitions when called on during classroom time or within their shop lab team.

### **Human Relations**

Hours: 160

- students learn about team concepts and cultural awareness through class room presentations and dialogue
- students are required to function as a contributing member of a team or group during panel repair activities.
- they have to work together to compile both written and oral diagnostic evaluations and come to agreement upon the proper sequence and method of replacement or repair of various automotive collision related projects.
- students must coordinate and cooperate in the set-up and use of equipment.
- because of the diversity of students within the program, they must learn to work with fellow classmates of different race, gender and ethnicity.
- they must also learn to communicate with team members using English as the primary language.
- team building competency will include instruction based upon the experience of the instructor working within the team environment used within the auto collision repair industry.

### **AB 201 Panel Replacement - Related Instruction**

#### **Computation**

Hours: 30

- students will build mock frame rails according to specific dimensional guide lines that include multiple bends areas and proper angles.
- measure and cut the three required splices, butt weld without backing, butt weld with backing and an offset lap weld.
- measuring dimensions, metal thickness,(gage), wire speed rates, voltage settings during welding.
- determine the severity of damaged vehicles using the proper measuring equipment depending on the damage; measuring tape, tram gage, universal measuring system or the computerized measuring system.
- write collision estimates that include adding, subtracting, and multiplying for parts and materials costs, labor calculations, and overlapping operations.

## **Communication**

Hours: 28

- writing collision damage estimates using collision estimating guides that include parts descriptions, repair procedures, included and non-included operations.
- required reading of 54 pages in the text book “Auto Body Repair Technology”
- answering chapter review and ASE style questions and students reading some of those answers aloud in class.
- students will fill out safety sheets and write a repair plan.
- write summaries of the repairs, explaining the techniques that were used during the repair, measuring system, types of welds, size of welds and the type of corrosion protection that was applied.
- presenting oral evaluations of any challenges and/or problems or items learned that they experienced from shop labs from the previous day.
- students explain technical terminology definitions when called on during classroom time or within their shop lab team.

## **Human Relations**

Hours: 140

- students learn about team concepts and cultural awareness through class room presentations and dialogue
- students are required to function as a contributing member of a team or group during panel replacement activities.
- they have to work together to prepare both a written and oral repair plan and come to an agreement upon the proper sequence and method of replacement or repair of the various collision repair projects.
- students must coordinate and cooperate in the set-up and use of equipment.
- because of the diversity of students within the program, they must learn to work with fellow classmates of different race, gender and ethnicity.
- they must also learn to communicate with team members using English as the primary language.
- team building competency will include instruction based upon the experience of the instructor working within the team environment used within the auto collision repair industry.

## **AB 205 Tech Skills/Collision Repair - Related Instruction**

### **Computation**

Hours: 98

- writing collision damage estimates that include adding, subtracting, and multiplying for parts and material costs, labor calculations, and overlapping operations.
- measuring voltage and resistance within an electrical circuit.
- working with steering, suspension and wheel alignment geometry angles as it pertains to Camber, Caster, Toe, Steering Axis Inclination and Included Angle, Thrust Angle and Turning Radius.
- learning how to read the geometry angles in degrees and decimal points. The adding, subtracting and dividing of those geometry angle degrees.
- determining torque measurements and using them in the tightening operations of the steering and suspension components and wheel lug nuts.
- understanding metric measurements and using them with a metric tape measure, tram gauge measurements, the Universal Measuring System and Chief Velocity Computerized Laser Measuring System.
- the reading of metric frame measurements on factory specification charts. The addition, subtraction and division of metric measurements.
- the three dimensional measuring of a vehicle's Datum Plane (for height), Centerline (for width), and Zero Point (for length).
- the determining of Vector angles for frame pulling chains, anchoring chains and swing chains.
- the reading of hydraulic P.S.I. on pulling equipment and converting to Pressure in Tons.
- understanding and working with measurement tolerances.

### **Communication**

Hours: 64

- writing visual inspection sheets.
- writing collision damage estimates using collision estimating guides that include parts descriptions, repair procedures, included and non-included operations.
- required reading of 149 pages in the text book “Auto Body Repair Technology”
- answering chapter review and ASE style questions and students reading some of those answers aloud in class.
- Reading six technical articles (15 pages) and writing a one page summary for each article.
- presenting oral evaluations of any challenges and/or problems or items learned that they experienced from shop labs from the previous day.
- students explain technical terminology definitions when called on during classroom time or within their shop lab team.

### **Human Relations**

Hours: 126

- students learn about team concepts and cultural awareness through class room presentations and dialogue
- students are placed on small teams and are expected to function as a contributing member of the team throughout the term.
- team leaders are rotated from day to day.

- they must work together to arrive at an oral diagnostic evaluation and agree on the proper repair plan.
- team members are expected to assist each other to fully understand the shop labs that they work on through verbal, written, and drawing methods of communication.
- students must coordinate and cooperate in the set-up and use of equipment.
- they learn how to treat the class as if they were employed at a job through respect of others, respect of tools, and respect of time.
- because of the diversity of students within the program, they must learn to work with fellow classmates of different race, gender and ethnicity.
- they must also learn to communicate with team members using English as the primary language.
- team building competency will include instruction based upon the experience of the instructor working within the team environment used within the auto collision repair industry.

### Appendix C

<b>Race-Ethnicity Distribution of PCC Students Enrolled in AB Courses</b>					
	African American	Asian/Pacific Islander	American Indian/Alaska Native	Hispanic	White Non-Hispanic
<b>2006-07</b>	1.0%	12.6%	1.9%	22.3%	62.2%
<b>2007-08</b>	6.0%	9.4%	0.0%	22.2%	62.4%
<b>2008-09</b>	4.0%	9.1%	1.0%	21.2%	64.7%
<b>2009-10</b>	4.3%	9.7%	1.7%	19.3%	64.9%
<b>2010-11</b>	5.5%	11.8%	0.8%	16.6%	65.3%
PCC Office of Institutional Effectiveness					
Source: End-of-Term Banner Student Extracts					

## Appendix D

### Technical Skill Assessment Auto Collision Repair Technology Portland Community College - Rock Creek Campus

#### Reliability

Our Auto Collision Repair Technology Program (ACR), had two types of assessments for which to develop scoring materials. To accomplish this large task, we combined the two projects into one comprehensive end of program assessment. As part of our Learning Assessment, we assessed the six PCC Core Outcomes of our ACR 2 Year Certificate & Associate of Applied Science Degree (AAS) (**see PCC Core Outcomes**). We also assessed our students' subject area specific hands-on and shop practice skills to fulfill our Technical Skills Assessment, as our program is a beneficiary of Perkins funding. There were many crossover Learning Assessment and Technical Skills Assessment areas.

The assessment tool (**see Cooperative Education Employer Evaluation**) 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 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 our 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 areas.

As part of the Cooperative Education contract, the employers agree to assess the degree to which students have met the outcomes and skills

required of the certificate or degree. Our Subject Area Committee (SAC) chose 3 levels of achievement, as opposed to 4 or 5, so that the assessment was more cut and dry. This way the employer was not stuck trying to decide on the middle areas of scoring. This also made the findings easier to interpret, more useful, and consistent. As a result, there are less gray areas of scoring making the assessment very reliable.

The assessment tool is based on a rubric that we have developed (**see ACR Learning Outcomes/Technical Skills Assessment Rubric**). The rubric describes the 3 levels of achievement 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 (George Warneke) who is the only instructor for this Cooperative Education course. For reliability and consistency, the two documents are read and signed by the employer/supervisor and discussed with the instructor prior to completing the assessment. 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 (George Warneke) (**see ACR Self-Reflection Cooperative Education Learning Assessment**). 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. We were able to create a scoring guide that both reflected a holistic score and an analytic score. For program assessment, the information gathered from all students is entered into our 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 department for consideration of program improvement (**see ACR Learning/Technical Skills Assessment Spreadsheet**). 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 Portland Community College Auto Collision Repair Technology (ACR) program's curriculum is approved by the National Automotive Training Education Foundation (NATEF), an affiliate of Automotive Service Excellence (ASE), and the Inter-Industry Conference on Auto Collision Repair (ICAR). In order to be certified by NATEF, we must meet strict guidelines that guarantee students receive training and hands-on experience in all the areas necessary to succeed in our industry. In order to maintain certification, our equipment, work areas, safety standards and instructor qualifications must meet tough criteria. Our students spend a large percentage of class time reaching levels of competence outlined in the NATEF guidelines. This assessment project was developed based on those guidelines and industry standards.

The 15 student pilot run of this Technical Skills Assessment was very successful. The scores were predictable based on classroom and shop lab grades. The student strengths and weaknesses closely mirrored the results of the assessment.

This assessment program was developed, evaluated and approved by the Portland Community College Auto Collision Repair Technology (ACR) program's Subject Area Committee (SAC).

This assessment program was evaluated and approved by the Portland Community College Auto Collision Repair Technology (ACR) program's industry Advisory Committee.

## **Student Proficiency Level**

Student proficiency level – An average score, per student, of 2.0 evaluating 45 performance task areas, using a rubric consisting of 3 levels: Level 1 =

limited, Level 2 = basic, Level 3 = advanced, was established (**see ACR Learning Outcomes/Technical Skills Assessment Rubric**). 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 our Subject Area Committee (SAC), that our proficiency level should be set at the level 2 – Basic, as per our rubric scoring guide. Individual student scores of 1 in any category could trigger further evaluation of the student’s abilities in this area, and could contribute to a non-passing grade for AB280A or AB280B. Our goal is a score of 2.0 (Basic demonstration and application of knowledge and skills) and above for any and all individual outcomes.

Our SAC is excited with the assessment tools that we have developed and we are thrilled with the overall results revealed by this process. Average scores in 10 out of 11 outcome categories and 12 out of 15 individual student averages were exceptional! (**see ACR Learning/Technical Skills Assessment Spreadsheet**) The one outcome category that we were not happy with 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 we would prefer. Two were under 2.0 and one was right at a 2.0 score. Even with the eventual improvement in the category of Self-Reflection, which would bring these three scores up, there are other areas of concern for these three students. When examining the three students, there is a common thread. They are non-native speakers and English is the second and even third language for these students.

## **Improvement to Teaching and Program**

There are definitely areas for improvement and plans to address these are as follows.

Self-Reflection outcomes: Scores indicate a lack of communicating self-reflection in the written form.

Students currently 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. We have been lacking on setting the expectations for the conclusion paragraph that is part of the technical article summaries and showing examples and expectations for the daily journal entries.

The SAC has agreed to implement the following strategies to help students develop this ability:

- 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 hand-out that explains what is expected to be included in the 8 weeks of daily journal entries and a sample journal entry (**see AB280B Cooperative Education – Seminar hand-out**).

Learning/Technical Skills outcomes for individual students: Scores indicate that 3 students had a total average of score that was right at or below our set goal.

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. Results from the assessment tools reveal that overall we are meeting and exceeding the needs of most of these types of students with the assistance of our Technical Learning Skills Specialist. We can do better though with a few individual students.

The SAC has 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.

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

## Appendix E

ACR Enrollment History											
Course	AB 100 Basic Skills	AB 105 Frame Repair	AB 106 Panel Repair	AB 201 Panel Replace	AB 205 Tech Skills	AB 280A Coop	AB 280B Coop	AB 116 Paint 1	AB 117 Paint 2	AB 118 Paint 3	Total
fall 2005	19	18	N/O	15	N/O	1	1	8	7	2	71
winter 2006	10	N/O	16	N/O	22	3	3	3	6	5	68
spring 2006	14	11	2	13	N/O	3	3	3	4	8	61
summer 2006	N/O	N/O	N/O	N/O	N/O	3	3	N/O	N/O	N/O	6
School Year 2005/2006											206
fall 2006	15	16	N/O	8	N/O	3	3	14	3	3	65
winter 2007	10	N/O	17	N/O	13	2	2	4	13	3	64
spring 2007	9	9	5	14	N/O	5	5	4	4	12	67
summer 2007	N/O	N/O	N/O	N/O	N/O	2	2	N/O	N/O	N/O	4
School Year 2006/2007											200
fall 2007	14	10	N/O	N/O	12	2	2	10	3	3	56
winter 2008	10	N/O	15	8	N/O	2	3	1	10	3	52
spring 2008	4	15	8	2	N/O	4	4	7	1	10	55
summer 2008	N/O	N/O	N/O	N/O	N/O	2	2	N/O	N/O	N/O	4
School Year 2007/2008											167
fall 2008	21	9	N/O	9	N/O	2	2	13	6	1	63
winter 2009	15	N/O	22	N/O	19	0	0	4	10	3	73
spring 2009	12	22	15	N/O	N/O	8	8	8	3	10	86
summer 2009	N/O	N/O	N/O	N/O	N/O	1	1	N/O	N/O	N/O	2
School Year 2008/2009											224
fall 2009	20	19	N/O	21	N/O	1	1	13	7	3	85
winter 2010	18	N/O	22	N/O	20	2	2	N/O	13	7	84
spring 2010	19	18	23	14	N/O	6	6	N/O	N/O	15	101
summer 2010	N/O	N/O	N/O	N/O	N/O	5	5	N/O	N/O	N/O	10
School Year 2009/2010											280
fall 2010	19	19	N/O	22	N/O	3	3	27	N/O	N/O	93
winter 2011	16	N/O	27	N/O	23	0	0	N/O	20	N/O	86
spring 2011	20	20	19	17	N/O	15	15	N/O	N/O	17	123
summer 2010	N/O	N/O	N/O	N/O	N/O	2	2	N/O	N/O	N/O	4
School Year 2010/2011											306
N/O = COURSE NOT OFFERED											

## **Appendix F**

### **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 G

### CTE Assessment Plan Repair Technology

AAS : Auto Collision

Submit to [learningassessment@pcc.edu](mailto:learningassessment@pcc.edu) by November 15, 2010

1. Outcome	2. Maps to a Core Outcome?	3. Assessment Setting/Method	4. When will assessment take place ?
<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Communication</li> <li>• Professional Competence</li> </ul>	<p>For AB 280A, students are required to do 300 hours of work experience; employers agree to assess students to outcomes using a rubric. A new Coop Education Employer Evaluation form will be explained and assisted by instructor of record for the course.</p>	<p>Year 1</p>
<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Community and Environmental Responsibility</li> <li>• Professional Competence</li> </ul>	<p>For AB 280A, students are required to do 300 hours of work experience; employers agree to assess students to outcomes using a rubric. A new Coop Education Employer Evaluation form will be explained and assisted by instructor of record for the course.</p>	<p>Year 1</p>
<ul style="list-style-type: none"> <li>• identify and implement strategies and processes to solve workplace and vehicle repair problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Critical Thinking and Problem Solving</li> <li>• Professional Competence</li> </ul>	<p>For AB 280A, students are required to do 300 hours of work experience; employers agree to assess students to outcomes using a rubric. A new Coop Education Employer</p>	<p>Year 1</p>

		Evaluation form will be explained and assisted by instructor of record for the course.	
<ul style="list-style-type: none"> <li>• apply necessary computation skills effectively as they pertain to auto collision repair.</li> </ul>	<ul style="list-style-type: none"> <li>• Critical Thinking and Problem Solving</li> <li>• Professional Competence</li> </ul>	For AB 280A, students are required to do 300 hours of work experience; employers agree to assess students to outcomes using a rubric. A new Coop Education Employer Evaluation form will be explained and assisted by instructor of record for the course.	Year 1
<ul style="list-style-type: none"> <li>• access and utilize repair information in a rapidly changing technology.</li> </ul>	<ul style="list-style-type: none"> <li>• Critical Thinking and Problem Solving</li> <li>• Professional Competence</li> </ul>	For AB 280A, students are required to do 300 hours of work experience; employers agree to assess students to outcomes using a rubric. A new Coop Education Employer Evaluation form will be explained and assisted by instructor of record for the course.	Year 1
<ul style="list-style-type: none"> <li>• use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Cultural Awareness</li> <li>• Professional Competence</li> </ul>	For AB 280A, students are required to do 300 hours of work experience; employers agree to assess students to outcomes using a rubric. A new Coop Education Employer Evaluation form will be explained	Year 1

		and assisted by instructor of record for the course. This will also be assessed in AB 280B, with reflection assignments related to Work Experience through 8 weeks of journal entries.	
<ul style="list-style-type: none"> <li>apply the knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with limited supervision</li> </ul>	<ul style="list-style-type: none"> <li>Professional Competence</li> </ul>	For AB 280A, students are required to do 300 hours of work experience; employers agree to assess students to outcomes using a rubric. A new Coop Education Employer Evaluation form will be explained and assisted by instructor of record for the course.	Year 1
<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Self-Reflection</li> <li>Professional Competence</li> </ul>	This will be assessed in AB 280B, with reflection assignments related to Work Experience through 8 weeks of journal entries.	Year 1
<ul style="list-style-type: none"> <li>advance to leadership or managerial positions in the auto collision industry.</li> </ul>	<ul style="list-style-type: none"> <li>General Education Requirements for AAS Degree</li> </ul>	This will be assessed by graduates obtaining their AAS degree in Auto Collision Repair Technology.	Year 1

5. For Programs that are beneficiaries of Perkins funding: Identify assessments that will comprise the TSA.

Technical Skills Assessment will be done at the same time and using the same Coop Education Employer Evaluation form and rubric as the learning assessment.

## Appendix H

### Annual Report for Assessment of Outcomes

*Submitted: June 13, 2011*

SAC: **ACR**: Auto Collision Repair Technology

Outcomes Assessed: ACR 2 Year Certificate & AAS Degree

1. *Describe changes to teaching practices implemented as a result of learning outcome assessments that were carried out in the previous academic year.*

We created a Critical Thinking Outcome assessment exercise during the previous academic year. We decided to abandon its use as it did not mesh with our new all-inclusive outcomes assessment project. We decided to focus our attention and efforts on our new project.

2. *Identify the outcomes assessed this year, and describe the methods used. What were the results of the assessment (i.e., what did you learn about how well students are meeting the outcomes)?*

For our Learning Assessment, we assessed the six PCC Core Outcomes of our ACR 2 Year Certificate & AAS Degree. We also assessed our student's subject area specific hands-on and shop practices skills to fulfill our Technical Skills Assessment, as our program is a beneficiary of Perkins funding. We accomplished this task by combining the two projects into one end of program assessment.

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

The Learning Assessment portion focuses on 25 learning areas that align with the six PCC Core Outcomes. The Technical Skills Assessment portion concentrates on 20 hands-on and shop practices skills that make up five areas of objectives that our program is built on. Some of the individual items could have been placed in either the learning assessment or the technical skills areas.



**Portland  
Community  
College**

P.O. Box 19000 Portland, Oregon 97280-0990

# 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
<p><b>1 2 3 ABILITY TO COMMUNICATE</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Reading - estimates, repair order, parts lists, instructions</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Writing - parts request, supply lists, supplements</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Speaking - Terminology, appropriate interactions</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Listening-following instructions, ask suitable questions</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Visually - diagrams, using technology to convey ideas</p>		<p><b>ABILITY TO APPLY CRITICAL THINKING &amp; PROBLEM SOLVING</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Process &amp; repair problems - repair sequences, distinguish relevant from non-relevant data</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Computation - measurements, basic math, basic computer programs</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Utilization of repair data - repair orders, measurement charts, manufacturer's information</p>
<p><b>HAS AN UNDERSTANDING OF COMMUNITY &amp; ENVIRONMENTAL RESPONSIBILITY</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Recycling - metals, antifreeze, batteries, paints &amp; thinners</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Hazards - exposure to chemical, safety, shop practices</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Pollution - efficient use of materials, end use issues</p>		<p><b>1 2 3 EXHIBITS PROFESSIONAL COMPETENCE</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is on time to work</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Alerts supervisor if absent or late</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Dresses appropriately for job setting</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Uses time effectively</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Adapt to feed back</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Does not endanger self or others</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Professional attitude</p>
	<p><b>1 2 3 DEMONSTRATE CULTURAL AWARENESS</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Cultural and human interactions - working within a team, attitude towards others</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Communicating with team members - mutual respect, acknowledging other opinions</p>	

TECHNICAL SKILLS ASSESSMENT	
EVALUATION OF CO-OP STUDENT SHOULD BE BASED ON COMPARISON TO ENTRY LEVEL EMPLOYEES.	
1 2 3	1 2 3
<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Knowledge &amp; use of basic tools</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Personal safety practices - safety glasses, glove, dust masks, respirators</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Shows continual improvement and speed in completing work</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Exhibits adequate knowledge learned in class to perform tasks</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Uses care with equipment and materials</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is accurate and careful in work</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in parts removal &amp; replacement</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in labeling and storage of parts &amp; hardware</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in parts alignment</p>	<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel repair</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel rough-out</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in surface preparation</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in finishing of filler</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in frame set-up</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in frame measuring</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Weld-on structural parts replacement</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel removal</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel fitting</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in spot-weld drilling</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in grinding welds</p>

**Instructor Use Only**

Did 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 \_\_\_\_\_

As part of the Cooperative Education contract, the employers agree to assess the degree to which students have met the outcomes and skills required of the certificate or degree. Our SAC chose 3 levels of achievement, as opposed to 4 or 5, so that the assessment was more cut and dry. This way the employer was not stuck trying to decide on the middle areas of scoring. This also makes the findings easier to interpret, more useful and consistent. As a result, there are less gray areas of scoring.

The assessment tool is based on a rubric that we provide (**see ACR Learning Outcomes/Technical Skills Assessment Rubric**). The rubric describes the 3 levels of achievement 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. The two documents are read and signed by the employer/supervisor and discussed with the instructor prior to completing the assessment. 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 (**see ACR Self-Reflection Cooperative Education Learning Assessment**). The five specific areas of assessment that cover the self-reflection outcome are based on student and instructor interaction, worksite visits, and 8 weekly journal entries.

# 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 \_\_\_\_\_

## 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 \_\_\_\_\_

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.

For program assessment, the information gathered from all students is entered into our assessment spreadsheet and is averaged for each outcome and an average of all outcomes is calculated for each student. The results are evaluated by the department for consideration of program improvement (**see ACR Learning/Technical Skills Assessment Spreadsheet**). Individual student results columns were placed into the spreadsheet in a random order for confidentiality.

Averaged scores of 2.0 and greater are interpreted as evidence that students are meeting or exceeding the specific outcomes. Individual student's scores of 1 in any category could trigger further evaluation of the student's abilities in this area, and could contribute to a non-passing grade for AB280A or AB280B. Our goal is a score of 2.0 (Basic demonstration and application of knowledge and skills) and above for any and all individual outcomes.

Our SAC is excited with the assessment tools that we have developed and we are thrilled with the overall results revealed by this process. Average scores in 10 out of 11 outcome categories and 12 out of 15 individual student averages were exceptional! The one outcome category that we were not happy with 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 we would prefer. Two were under 2.0 and one was right at a 2.0 score. Even with the eventual improvement in the category of Self-Reflection, which would bring these three scores up, there are other areas of concern for these three students. When examining the three students, there is a common thread. They are non-native speakers and English is the second and even third language for these students. There are definitely areas for improvement and plans to address these are in section 3 below.

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	
Company name	VC	MC	KN	CA	AC	AA	AA	CA	CA	KW	MV	BB	KW	BT	MH					
Met objectives	yes	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					
<b>Total # of Students</b>	<b>15</b>																			
<i>Communication</i>																				
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%	
<i>Community and Environmental Responsibility</i>																				
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%	
<i>Critical Thinking and Problem Solving</i>																				
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 date	2	2	1	2	3	3	3	3	2	1	3	3	2	3	3	2.4	13%	33%	53%	
<i>Professional Competence</i>																				
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%	
<i>Cultural Awareness</i>																				
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%	
<i>Self-Reflection</i>																				
Shop activities and environment	2	3	2	2	3	3	3	3	3	2	3	2	3	3	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

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				
<i>Shop Practices</i>																			
Knowledge and use of basic tools	3	3	2	3	3	3	3	2	2	2	3	3	2	3	3	2.7	0%	33%	67%
Personal safety practices	1	2	3	3	3	3	3	3	3	3	2	3	3	3	2	2.7	7%	20%	73%
Shows continual improvement, speed	2	2	2	2	3	3	3	3	3	2	2	3	2	3	2	2.5	0%	53%	47%
Exhibits adequate knowledge	3	3	2	3	3	3	3	3	3	3	3	3	2	3	3	2.9	0%	13%	87%
Uses care with equipment	1	3	3	3	3	3	3	2	3	3	3	3	2	3	2	2.7	7%	20%	73%
Accurate and careful	2	3	2	3	3	3	3	3	3	3	2	3	2	3	3	2.7	0%	27%	73%
<i>Parts Replacement</i>																			
Skill in parts removal	3	3	1	2	3	3	3	3	3	2	3	3	2	2	3	2.6	7%	27%	67%
Skill in labeling and storage	3	2	3	3	3	3	3	3	3	2	3	3	2	3	2	2.7	0%	27%	73%
Skill in parts alignment	1	2	2	3	3	3	3	2	1	2	3	2	2	2	2	2.3	13%	47%	40%
<i>Panel Repair</i>																			
Skill in panel repair	2	2	1	3	3	3	3	3	3	1	2	3	3	2	2	2.4	13%	33%	53%
Skill in panel rough-out	2	2	2	3	3	3	3	3	3	2	2	3	2	2	2	2.5	0%	53%	47%
Skill in surface preparation	2	3	2	3	3	3	3	3	3	1	3	3	2	3	2	2.6	7%	27%	67%
Skill in finishing of filler	2	2	1	3	3	3	3	3	2	1	3	3	2	2	3	2.4	13%	33%	53%
<i>Frame Repair + Measuring</i>																			
Skill in frame set-up	2	2	1	2	3	3	3	2	2	1	2	3	2	3	3	2.3	13%	47%	40%
Skill in frame measuring	2	2	1	2	3	3	3	2	2	1	2	3	2	3	3	2.3	13%	47%	40%
<i>Weld-on Parts Replacement</i>																			
Weld-on structural parts replacement	3	2	2	2	3	3	3	3	2	2	3	3	2	2	2	2.5	0%	53%	47%
Skill in panel removal	3	2	2	3	3	3	3	3	3	2	3	3	2	2	2	2.6	0%	40%	60%
Skill in panel fitting	2	2	2	3	3	3	3	3	3	1	2	3	2	2	2	2.4	7%	47%	47%
Skill in sport-weld drilling	3	3	2	2	3	3	3	3	2	2	3	3	2	3	3	2.7	0%	33%	67%
Skill in grinding welds	3	3	2	2	3	3	3	3	3	1	3	3	2	3	3	2.7	7%	20%	73%
Student Average	2.2	2.5	1.8	2.5	2.9	2.9	2.8	2.8	2.6	2.0	2.6	2.8	1.9	2.7	2.4				
Individual student results columns were placed into the spreadsheet in a random order for confidentiality.																			

**Level 1=Limited 2=Basic 3=Advanced**

3. *Identify any changes that should, as a result of this assessment, be implemented towards improving students' attainment of degree and certificate outcomes.*

### Improvement to Teaching and Program

Self-Reflection outcomes: Scores indicate a lack of communicating self-reflection in the written form.

Students currently 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 journal entries during the Cooperative Education work experience. We have been lacking on setting the expectations for the conclusion paragraph that is part of the technical article summaries and showing examples and expectations for the weekly journal entries.

The SAC has agreed to implement the following strategies to help students develop this ability:

- 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 hand-out that explains what is expected to be included in the 8 weekly journal entries and a sample journal entry (**see AB280B Cooperative Education – Seminar hand-out**).

Learning/Technical Skills outcomes for individual students: Scores indicate that 3 students had a total average of score that was right at or below our set goal.

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 be a struggle also. Results from the assessment tools reveal that overall we are meeting and exceeding the needs of most of these types of students with the assistance of our Technical Learning Skills Specialist. We can do better though with a few individual students.

The SAC has 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 ESOL classes.

The SAC has agreed to implement the use of the new scoring rubric for all ACR course hands-on projects, activities, and skills. This will allow us to have consistent assessment throughout our entire program.

# 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](mailto: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 their 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 I**  
**Course Outcomes Listed by Course Name**

## **Auto Collision Repair Technology**

### **AB 100 Autobody Basic Skills**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to basic 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 basic tools and welding equipment, products and chemicals and how those items affect the local and global environment.
- identify and implement basic strategies and processes to solve workplace and vehicle repair problems, access and utilize basic repair information in a rapidly changing technology.
- apply necessary basic computation skills effectively as they pertain to auto collision repair.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- apply knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with supervision.

## **Auto Collision Repair Technology**

### **AB 105 Frame Analysis & Repair**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- 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 collision theory to the use of frame straightening and alignment equipment, and how products and chemicals affect the local and global environment.
- identify and implement strategies and processes to solve workplace and vehicle repair problems, access and utilize repair information in a rapidly changing technology on a limited basis.
- apply necessary advanced computation skills effectively as they pertain to frame repair measuring and 4-way wheel alignment.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- apply the frame repair knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with supervision.

## **Auto Collision Repair Technology**

### **AB 106 Panel Repair**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- 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 panel repair 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, access and utilize repair information in a rapidly changing technology on a limited basis.
- apply necessary basic computation skills effectively as they pertain to auto collision repair.
- 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.

## **Auto Collision Repair Technology**

### **AB 201 Panel Replacement**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- 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 advanced welding equipment and 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, access and utilize repair information in a rapidly changing technology.
- apply necessary computation skills effectively as they pertain to auto collision repair.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- apply the weld-on panel replacement knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with limited supervision.

## **Auto Collision Repair Technology**

### **AB 205 Technical Skills/Collision Repair**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to advanced 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 advanced 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, access and utilize advanced repair information in a rapidly changing technology.
- apply necessary advanced computation skills effectively as they pertain to auto collision repair.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.
- apply the advanced technical knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with limited supervision.

## **Auto Collision Repair Technology**

### **AB 280A CE:Auto Body Repair**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to advanced 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 advanced 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, access and utilize advanced repair information in a rapidly changing technology.
- apply necessary advanced computation skills effectively as they pertain to auto collision repair.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry.

- apply the advanced technical knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with limited supervision and start a career in the auto collision repair industry.

## **Auto Collision Repair Technology**

### **AB 280B CE:Auto Body Repair**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to advanced terminology, processes and skills of auto collision repair and professional workplace behavior and provide that experience through 8 weeks of practical work journal entries.
- identify and implement strategies and processes to solve workplace and vehicle repair problems and provide that experience through 8 weeks of practical work journal entries.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto collision repair industry and provide that experience through 8 weeks of practical work journal entries.
- apply the advanced technical knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto collision repair profession, with limited supervision and provide that experience through 8 weeks of practical work journal entries.
- 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 and provide that experience through 8 weeks of practical work journal entries.
- start a career in the auto collision repair industry.

## **Auto Collision Repair Technology – Auto Body Painting**

### **AB 116 Auto Painting I**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to basic 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 basic tools, products and chemicals and how those items affect the local and global environment.
- identify and implement basic strategies and processes to solve basic workplace and auto body painting problems, access and utilize basic repair information in a rapidly changing technology.
- apply necessary basic computation skills effectively as they pertain to auto body painting.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto body painting industry.
- apply the basic knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto body painting profession, with supervision.

## **Auto Collision Repair Technology – Auto Body Painting**

### **AB 117 Auto Painting II**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- 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 on a limited basis.
- 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 basic workplace and auto body painting problems, access and utilize repair information in a rapidly changing technology on a limited basis.
- apply necessary computation skills effectively as they pertain to auto body painting.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto body painting industry.

- apply the knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto body painting profession, with supervision.

## **Auto Collision Repair Technology – Auto Body Painting**

### **AB 118 Auto Painting III**

#### **Intended Outcomes for the course**

Students that complete this course will be prepared to:

- communicate effectively with employers, coworkers and customers, adapting to feedback as it pertains to advanced 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 advanced tools, products and chemicals and how those items affect the local and global environment.
- identify and implement advanced strategies and processes to solve workplace and auto body painting problems, access and utilize advanced repair information in a rapidly changing technology.
- apply necessary advanced computation skills effectively as they pertain to auto body painting.
- use an understanding of variation in culture and human interactions to working within the team environment in the auto body painting industry.
- apply the advanced knowledge, skills and attitudes necessary to work within the ethical and professional parameters of the auto body painting profession, with limited supervision and start a career in the auto body painting industry.

## Appendix J

### AB/Collision SAC

September 19, 2011

Hello, Automotive Collision SAC.

Thank for your efforts toward PCC's learning assessment process. As you may recall, the letter the Northwest Commission on Colleges and Universities (our accreditors) sent in August 2010 served as a "wake up call" on program/discipline assessment. They said that we needed to "hasten our progress in demonstrating, in a regular and systematic fashion, how the assessment of student learning leads to the improvement of teaching and learning." Until we did so, they said, PCC did not "meet the Commission's criterion for accreditation."

After the wonderful response from faculty, through the SACs, the letter from the commission this August was much nicer to read....We are no longer out of compliance regarding assessment. This does not mean our work is done, as the commission is going to continue to monitor our assessment work, emphasizing how we guarantee that students who leave with a degree or certificate are actually competent in the listed outcomes. But it is wonderful to know that we are on the right track!

Learning as we go, PCC continues to improve our assessment process. There have been many successes within the college for both CTE and LDC SACs from which we can all benefit. The Learning Assessment Council has faculty coaches who are collaboratively developing knowledge and skills to assist SACs in this process. **Your coach is:**

**Jessica Bernards** ([jessica.bernards@pcc.edu](mailto:jessica.bernards@pcc.edu); 971-722-7682)

Please contact your coach for suggestions and s/he will help smooth the path as much possible and ensure that next year the faculty work on assessment (1) meets accreditation requirements and (2) provides specific and meaningful results to your SAC that will promote increased student learning.

PCC's approach to assessment is faculty-driven and faculty-led. An important part of the process is peer review of SAC assessment reports. All reports were read by faculty reviewers over the summer. We are returning your report now with the peer review.

## PEER REVIEW OF ASSESSMENT REPORT

General Comments	Your report is very clear, precise, and easy to read. Thank you for all of your effort with the assessment process and the hard work your SAC is putting in. It is very evident in all you are doing for our students. This was an incredibly impressive report that could be used to model to other SACs what we are looking for.
1. Changes resulting from last year's assessment?	In future assessment reports, it would be helpful if you could state any changes or realizations the SAC found based on the assessment used in the previous year. Although deciding to abandon a previous assessment, was there anything you learned and changed within your curriculum and/or instruction from that exercise?
2a This year: DESIGN (what did you do?)	Your design is <i>incredibly</i> well done. Not only did you assess all 6 core outcomes for all students graduating from your program, but you found a way to integrate that assessment into one you already had to do for funding. Your rubric is easy to understand and very cut and dry. By choosing to use only 3 levels of ranking you helped keep the findings "much easier to interpret, more useful and consistent." Also, by choosing to evaluate the self-reflection core outcome by using three different 'artifacts' truly helps to ensure you're getting an accurate reading on what level your students are at as opposed to <i>only</i> looking at journal entries, etc. Thank you for including your rubrics in your report as well.
2b This year: RESULTS (what did you learn?)	Your results are reported quantitatively in an easy to read and understand spreadsheet. Additionally, you reflected on reasons why you scored low in certain areas by looking closer at those students who did to find any trends. Your rubric seemed to directly assess students' mastery of outcomes rather than perception. Very impressive.
3a. <u>Instructional changes</u> planned based on what was learned?	Based on your results, you recognized where your program has weaknesses and brainstormed several instructional and curriculum approaches your SAC agreed upon to implement in the classroom next year. Not only did you look at what changes can be made at the program level, but how instructors can help support students that are struggling with language barriers.
3b <u>Assessment strategy changes</u> planned based on what was learned?	N/A
Other	Great job!

## GENERAL TRENDS AT PCC

Some comments from peer reviewers showed up frequently. We have listed those below for your reference. As we all learn more about quality assessment, our understanding of the components of a good assessment plan is emerging. Please look over the following items, to see if your SAC needs to address any of these concerns.

1. According to the PCC registrar, faculty can use student work for assessment purposes without getting explicit permission, providing all identifiers can be removed. If you are not confident that you can remove all identifiers, then you should include an opt-out statement on your syllabus. To be certain you are compliant with FERPA, you can also collect permission slips. To find out more, go to [www.pcc.edu/assessment](http://www.pcc.edu/assessment) If you are using samples of student work from term

to term – for example to demonstrate good and less good examples – please consider carefully whether all identifiers have been removed.

2. In many cases, it was unclear from the report what percentage of students was assessed. The Learning Assessment Council is still in discussion about adequate sample size for meaningful results. In general: the more students in the sample, the increased validity of the results. For the next report, please include what percentage of students was assessed.
3. In many reports, there was no mention of a norming process being used by the faculty members using a checklist or rubric. Norming is an important step. Often an individual faculty member will grade the first paper in a stack of papers differently from the last. So, it is not surprising that there would be grading discrepancies between faculty members when assessing the program/discipline. When faculty members are “calibrated” to the evaluation tool (such as a rubric/checklist) consistency develops in the assessment process bringing inter-rater reliability.
4. There are three ways to guarantee high quality in education – by looking at the in-puts to the process (for example, degrees attained by faculty), by looking at attributes of the process itself (by an evaluator doing a classroom observation, for example), or by assessing the out-puts of the process (for example, by looking at competencies of successful completers of a program.) Traditionally, higher education has focused on in-puts and process primarily. The recent push for assessment is new, and shifts our attention to the out-puts of an educational program. In many assessment reports, the process was described, but not the student attainment of the outcomes.
5. One of the hardest parts of the current focus on assessment is the requirement that we assess to show, not just where our programs are working well, but also where there is room for improvement. This requires a kind of trust – that showing weaknesses will not result in punitive response. Paradoxically, the current push for quality in higher education means that *not* showing room for improvement invites the punitive response from our accreditors..... However, sometimes assessment of learning outcomes shows that a SAC is in fact doing a good job. These cases lead to the following questions:
  - Is your assessment designed to provide you with meaningful information, or just to show off accomplishments?
  - If your instrument is well designed, then the assessment can be relied on to show an area where your program is doing well – in the next assessment cycle, you can look for other areas where your program/discipline can improve.
  - If your instrument is well-designed, there is still the question of how to interpret results. Interpretation requires comparing your results to a standard or benchmark. What is your benchmark, and can or should it be adjusted? For example, how do your students' attainments compare to those of other colleges?

Faculty collaboration is the heart of PCC's faculty-driven and faculty-lead process. Here are some of the reasons why:

- Program Evaluation vs Instructor Evaluation: Although there is a connection between student learning and effective faculty, the assessment activities should

measure the program/discipline, not measure of an individual instructor's effectiveness. The best way to do this is to have all identifying information removed from the student work (both faculty and student) and then have the SAC (or a subcommittee of SAC members) assess the student work after being normed to the evaluation tool.

- Break out of "course silos": When faculty evaluates student work collaboratively rich and nuanced discussions occur naturally about what is important for student success. Sometimes we may be surprised (or dismayed) to learn that others hold different views about what they feel is important to student success. These discussions provide growth for, and consistency within, the program/discipline. Also, a faculty member may see the need for changes in his or her course to better support a course he or she does not teach (or does not teach often).

As you may be aware, institutions of higher education are increasingly coming under scrutiny by state and federal governments. If higher education does not adequately address their concerns (and soon), higher ed may be regulated in a similar way to K-12's No Child Left Behind. In an attempt to maintain autonomy, the higher education's regional accreditation agencies are changing their accreditation requirements.

PCC has chosen a faculty-driven and faculty-led process to meet the accreditation changes from Northwest Commission on Colleges and Universities with the belief that we, the faculty (part-time and full-time), are the experts. In fact, we are the only members of the college who can truly (1) determine appropriate high standards for our program/discipline regarding student learning and (2) identify and address any issues around student's attainment of those high standards. Never before has faculty played such a direct and important role in the accreditation of the college.

The Learning Assessment Council realizes that this work is time consuming and, at times, difficult and frustrating. However, we have seen much evidence in the reports that faculty members are excited about what they are learning from this process. Through your efforts, PCC is developing meaningful ways to address any deficiencies in student learning. We thank you!

Shirlee Geiger, Chair of Learning Assessment Council

Michele Marden, Co-Chair of Learning Assessment Council

# Appendix K



P.O. Box 19000 Portland, Oregon 97280-0990

## 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
<p><b>1 2 3 ABILITY TO COMMUNICATE</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Reading - estimates, repair order, parts lists, instructions</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Writing - parts request, supply lists, supplements</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Speaking - Terminology, appropriate interactions</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Listening-following instructions, ask suitable questions</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Visually - diagrams, using technology to convey ideas</p> <p><b>HAS AN UNDERSTANDING OF COMMUNITY &amp; ENVIRONMENTAL RESPONSIBILITY</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Recycling - metals, antifreeze, batteries, paints &amp; thinners</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Hazards - exposure to chemical, safety, shop practices</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Pollution - efficient use of materials, end use issues</p> <p><b>1 2 3 DEMONSTRATE CULTURAL AWARENESS</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Cultural and human interactions - working within a team, attitude towards others</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Communicating with team members - mutual respect, acknowledging other opinions</p>	<p><b>1 2 3 SOLVING</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Process &amp; repair problems - repair sequences, distinguish relevant from non-relevant data</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Computation - measurements, basic math, basic computer programs</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Utilization of repair data - repair orders, measurement charts, manufacturer's information</p> <p><b>1 2 3 EXHIBITS PROFESSIONAL COMPETENCE</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is on time to work</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Alerts supervisor if absent or late</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Dresses appropriately for job setting</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Uses time effectively</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Adapt to feed back</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Does not endanger self or others</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Professional attitude</p>	<p><b>ABILITY TO APPLY CRITICAL THINKING &amp; PROBLEM SOLVING</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Process &amp; repair problems - repair sequences, distinguish relevant from non-relevant data</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Computation - measurements, basic math, basic computer programs</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Utilization of repair data - repair orders, measurement charts, manufacturer's information</p>

TECHNICAL SKILLS ASSESSMENT	
EVALUATION OF CO-OP STUDENT SHOULD BE BASED ON COMPARISON TO ENTRY LEVEL EMPLOYEES.	
<p><b>1 2 3</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Knowledge &amp; use of basic tools</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Personal safety practices - safety glasses, glove, dust masks, respirators</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Shows continual improvement and speed in completing work</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Exhibits adequate knowledge learned in class to perform tasks</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Uses care with equipment and materials</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is accurate and careful in work</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in parts removal &amp; replacement</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in labeling and storage of parts &amp; hardware</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in parts alignment</p>	<p><b>1 2 3</b></p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel repair</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel rough-out</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in surface preparation</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in finishing of filler</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in frame set-up</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in frame measuring</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Weld-on structural parts replacement</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel removal</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in panel fitting</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in spot-weld drilling</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Skill in grinding welds</p>

**Instructor Use Only**

Did 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
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## Appendix L

### 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 M

### 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 N

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
Company name	VC	MC	KN	CA	AC	AA	AA	CA	CA	KW	MV	BB	KW	BT	MH				
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				
<b>Total # of Students</b>	<b>15</b>																		
<i>Communication</i>																			
Reading	2	2	1	3	3	2	2	2	2	2	2	2	2	3	3	2.2	7%	67%	27%
Writing	2	2	3	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%
<i>Community and Environmental Responsibility</i>																			
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%
<i>Critical Thinking and Problem Solving</i>																			
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 date	2	2	1	2	3	3	3	3	2	1	3	3	2	3	3	2.4	13%	33%	53%
<i>Professional Competence</i>																			
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%
<i>Cultural Awareness</i>																			
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%
<i>Self-Reflection</i>																			
Shop activities and environment	2	3	2	2	3	3	3	3	3	2	3	2	3	3	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

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				
<b>Shop Practices</b>																			
Knowledge and use of basic tools	3	3	2	3	3	3	3	2	2	2	3	3	2	3	3	2.7	0%	33%	67%
Personal safety practices	1	2	3	3	3	3	3	3	3	3	2	3	3	3	2	2.7	7%	20%	73%
Shows continual improvement, speed	2	2	2	2	3	3	3	3	3	2	2	3	2	3	2	2.5	0%	53%	47%
Exhibits adequate knowledge	3	3	2	3	3	3	3	3	3	3	3	3	2	3	3	2.9	0%	13%	87%
Uses care with equipment	1	3	3	3	3	3	3	2	3	3	3	3	2	3	2	2.7	7%	20%	73%
Accurate and careful	2	3	2	3	3	3	3	3	3	3	2	3	2	3	3	2.7	0%	27%	73%
<b>Parts Replacement</b>																			
Skill in parts removal	3	3	1	2	3	3	3	3	3	2	3	3	2	2	3	2.6	7%	27%	67%
Skill in labeling and storage	3	2	3	3	3	3	3	3	3	2	3	3	2	3	2	2.7	0%	27%	73%
Skill in parts alignment	1	2	2	3	3	3	3	2	1	2	3	2	2	2	2	2.3	13%	47%	40%
<b>Panel Repair</b>																			
Skill in panel repair	2	2	1	3	3	3	3	3	3	1	2	3	3	2	2	2.4	13%	33%	53%
Skill in panel rough-out	2	2	2	3	3	3	3	3	3	2	2	3	2	2	2	2.5	0%	53%	47%
Skill in surface preparation	2	3	2	3	3	3	3	3	3	1	3	3	2	3	2	2.6	7%	27%	67%
Skill in finishing of filler	2	2	1	3	3	3	3	3	2	1	3	3	2	2	3	2.4	13%	33%	53%
<b>Frame Repair + Measuring</b>																			
Skill in frame set-up	2	2	1	2	3	3	3	2	2	1	2	3	2	3	3	2.3	13%	47%	40%
Skill in frame measuring	2	2	1	2	3	3	3	2	2	1	2	3	2	3	3	2.3	13%	47%	40%
<b>Weld-on Parts Replacement</b>																			
Weld-on structural parts replacement	3	2	2	2	3	3	3	3	2	2	3	3	2	2	2	2.5	0%	53%	47%
Skill in panel removal	3	2	2	3	3	3	3	3	3	2	3	3	2	2	2	2.6	0%	40%	60%
Skill in panel fitting	2	2	2	3	3	3	3	3	3	1	2	3	2	2	2	2.4	7%	47%	47%
Skill in sport-weld drilling	3	3	2	2	3	3	3	3	2	2	3	3	2	3	3	2.7	0%	33%	67%
Skill in grinding welds	3	3	2	2	3	3	3	3	3	1	3	3	2	3	3	2.7	7%	20%	73%
Student Average	2.2	2.5	1.8	2.5	2.9	2.9	2.8	2.8	2.6	2.0	2.6	2.8	1.9	2.7	2.4				
Individual student results columns were placed into the spreadsheet in a random order for confidentiality.																			

**Level 1=Limited 2=Basic 3=Advanced**

## Appendix O

### 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](mailto: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 their 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 P

Auto Collision Repair Technology Graduation Records				
Certificate or Degree Awarded	ACR Less than 1 Year Certificate	ACR 2 Year Certificate	ACR Associates of Applied Science Degree	ACR Paint Less than 1 Year Certificate
2007	1	5	0	7
2008	1	5	0	14
2009	6	6	0	13
2010	5	6	3	19
2011	59	12	2	15