Automotive Service Technology
Annual Report for Assessment of Outcomes 2011-2012

Please address the questions below
send to *learningassessment@pcc.edu* by **June 22, 2011;** with Annual Report in the subject line

Note: Information provided in this report may be inserted into or summarized in Section 2C (LDC/DE)) or 6B (CTE) of the Program Review Outline.

1. Describe changes that have been implemented towards improving students' attainment of outcomes that resulted from outcome assessments carried out in 2010-2011. These may include but are not limited to changes to content, materials, instruction, pedagogy etc.

The Automotive Department has implemented some changes in the hopes of improving program outcomes and student completion rates. We recognized from previous self-assessments that some barriers to student success were integral to the program. In the past year, we have changed from a 4 module to a 3 module term which keeps congruency and "flow" as students progress through the program with little to no interruptions. In the past, our schedule necessitated a split module between Winter and Spring terms as well as the addition of one Summer module. This proved to be a barrier for student completion.

We have also required enrollment in CG 209 Job Finding Skills in the first term to keep this from being a barrier to student completion. By frontloading this course it prevents it from being a stumbling block to gaining the certificate or degree when gainful employment is found while in the program.

We have also added a 3 module series of capstone courses to address two conditions we found in the program. Students were leaving the program and entering COOP with no refresh of previous courses and feedback from students and employers showed a lack of confidence. By requiring each student to complete a series of capstone courses, the department can review program content and prepare students for employment in the field. We have also provided for the capstone courses to be retaken as a substitute for COOP in the case of industry slowdowns, personal background issues and a desire by students to enter into another area of the automotive industry in which a repair job may not be needed.

We are also in the process of reviewing course content and updating curriculum to integrate hybrid and battery electric vehicle technology as well as changing industry trends with our course reorganization. Two changes we are excited about are the addition of TSA tests which allow us to see how well we prepare our students for industry credentialing and the colleges student surveys which allow us to add program and course specific questions for outcome and instructor level improvements.

With the institution of the TSA and upgrading of student portfolio information to gain self-assessment and self-reflection questions, we hope that we can address more program improvements in the upcoming years.

For each outcome assessed this year:

2. Describe the assessment design (tool and processes) used. Include relevant information about:

- The nature of the assessment (e.g., written work, project, portfolio, exam, survey, performance etc.) and if it is direct (assesses evidence mastery of outcomes) or indirect (student's perception of mastery). Please give rationale for indirect assessments (direct assessments are preferable).
- The student sample assessed (including sample size relative to the targeted student population for the assessment activity) process and rationale for selection of the student sample. Why was this group of students and/or courses chosen?
- Any rubrics, checklists, surveys or other tools that were used to evaluate the student work. (Please include with your report). Where appropriate, identify benchmarks.
- How you analyzed results, including steps taken to ensure that results are reliable (consistent from one evaluator to another.

It is the goal of the Automotive Department to assess all of our program outcomes but we feel that the greatest benefit to the students is to work towards mastery of course outcomes, which will ultimately lead to the program outcomes. Included is a list of our program outcomes and the degree to which we assessed each one:

AAS: Automotive Service Technology

- *Repair cars and light trucks with limited supervision and to customer satisfaction.*
- *Access and utilize repair information in a rapidly changing technology.*
- *Communicate effectively with employers, customers and co-workers.*
- *Implement strategies and processes to solve the vehicle's repair problems.*
- *Perform vehicle repair to the highest professional and ethical standards.*

By adding the capstone courses to the program, we have given students a chance to not only practice culminated skills developed throughout the program but also apply these skills in a "live shop" setting with customer interaction and instructor/service department feedback. We feel that by requiring comprehensive vehicle inspections, electronic repair orders and face to face interactions with customer service staff and customers themselves, we help to develop needed communication and human relations skills as well as provide chances to apply previous knowledge and diagnostic skills to problem solving.
The department uses electronic vehicle inspection forms and repair orders that are assessed for feedback by the supervising instructor and service department staff. The process is direct and has been informally normed but does not have a rubric attached. This is an oversight we should fix for this next year.
Also instituted this year is a TSA test that measures student understanding against our accrediting bodies tasks (NATEF). Every student is assessed that enrolls in the capstone courses and represents the students that are near completion. All 8 ASE (Engine Repair, Engine Performance, HVAC, Electrical, Brakes, Steering and Suspension, Manual and Automatic Drivetrain) areas are assessed and the tests are administered via computer twice per year. Results of this direct assessment are available per student and are scored through the accrediting body (NATEF).

Next year we hope to add a self-assessment and reflection component to the student portfolio that will give us the students desired goals and their perceived level of program success and mastery at both a midpoint and during the capstone courses. We feel this is useful because it will

show the department the value placed by the student on the education they are receiving. We feel that if a student feels their education is relevant and worthwhile, they will invest more in the outcome!

Attached are the results for the TSA tests, which do give us some cause for concern. We have contacted the accrediting agency in the hopes of getting more detailed results for the students so we can see which specific NATEF task areas the students meet or don't meet. The average scores range in the 60% and 70% ranges, which we feel is too low. It was good to see that all but one student test met the passing score but we still feel the averages are too low.

3. Provide information about the results (i.e., what did you learn about how well students are meeting the outcomes)?
   - If scored (e.g., if a rubric or other scaled tool is used), please report the data, and relate to any appropriate benchmarks.
   - Results should be broken down in a way that is meaningful and useful for making improvements to teaching/learning. Please show those specific results.

   Attached is cumulative TSA test data, which shows individual percentages for each test each student took as well as the overall average for all students in each subject area.

4. Identify any changes that should, as a result of this assessment, be implemented to help improve students' attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).

   In order to further our student's education and completion, we feel that we need to continue to upgrade our curriculum to add new industry technologies into both classroom instruction and more importantly, laboratory exercises. Student's report and show that they must "do" the experiments, diagnostics and repairs before they gain the confidence and skills needed to succeed in the workplace in an ethical and productive way. We currently need improved computers, new vehicles, test engines and diagnostic tools to keep up with a very rapidly changing industry. Our vehicles, tools and equipment are outdated and much is in dire need of repair. We hope that we can gain industry support in upgrading equipment and vehicles but have found this to be an uphill battle; most equipment and vehicles are resold or dismantled for asset recovery.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

As mentioned earlier, we are in the process of requesting more detailed information from our accrediting body so that we have a better idea of the specific NATEF tasks we need to improve instruction upon. We are also looking to adapt portfolio entries to include indirect student assessment by requesting individual student goals and then revisiting these goals for updating and self reflection on how well they were met at both the program and individual levels.

Portland Community College Automotive Department Assessment Criteria 2012

The Automotive Department at Portland Community College is using different methodologies to assess student progress in the Automotive Service Technology Program. Our original proposal was to use student generated portfolios and a "grading" rubric to assess student mastery of skills. Over the past year, we have determined that the current portfolio design is better utilized as work examples for employment assistance than as evidence of skill mastery. In light of these findings, the automotive department is going to continue the portfolio as a job finding skills component but add a student reflection component. We hope to ask incoming students to perform a self-assessment of their program goals, reevaluate these mid-cycle within the program (during the Engine Performance courses) and finally reflect upon how well the program met their goals and the skills they believe they gained during the capstone courses. Because TSA testing is done during the capstone courses, we believe this will be the best time to encourage reflection of program and personal goals since it will be directly tied to perceived knowledge and mastery as students complete their skills assessments.

The Technical Skills Assessment used by the Automotive Department at Portland Community College is a Computer Based Test administered by the National Automotive Technicians Education Foundation. NATEF is the educational accrediting body of The National Institute for Automotive Service Excellence (ASE), which administers certification to Professional Automotive Service Technicians. The tests used are the National Automotive Student Skills Standards Assessment (NA3SA), which mimic the questions used for Professional Technician certification. All eight ASE certification areas are assessed for all completing students using the NA3SA tests. This data is used to determine student ability to pass the ASE certifications as well as the validity of automotive courses taught at Portland Community College. We have found that each subject area is broken down so that the department can assess the quality of each subject area taught but is not as robust as we would like. NATEF has been contacted in the hope that we can gain access to a report that will detail each student's "pass rate" or mastery of each tested NATEF task. Without knowing the breakdown of each student's task mastery, we don't feel we can address the specific shortcomings of the program in a meaningful way. The goal of assessment is to make continued and incremental program, course and instructor improvements. To do this, we need to know the areas in which we are "falling down."

The Automotive Department feels that a good informational tool for use in our overall program assessment would be employment history of our students. We feel the goal of the PCC automotive program is to provide the skills necessary for gainful employment to our students. We have attempted to contact alumni of the program to see if they are still in the automotive field but have found this to be problematic due to changing contact

information. It would be very helpful for the college to assist in the research of this data for recent and long time graduates of the Automotive Program.

Ultimately, we are making steps to further improve program and course outcomes but this is and will continue to be a work in progress. By asking student's for their goals and a reflection on how well these were met by the program, we hope to take the first step in the process for program improvement. The department was involved in the "test" program for the college's new student survey tool but have yet to receive any data from this pilot. We are excited to be able to get relevant, student-focused data regarding program, course and instructor performance. The department has developed program level questions to add to the survey and will be adding additional course level questions (with open ended "text boxes") to assess course outcomes for the most immediate and relevant data.

Institutional Level Questions (PCC):

For face-to-face classes:

1. The instructor was available to help me.
2. The instructor created a student-friendly learning environment where I could participate.
3. The work expectations for this class were clear.
4. I received timely feedback on my work.
5. I received clear feedback on my work.
6. The grading system was clearly communicated.
7. The instructor was prompt in arriving and starting the class.
8. The instructor used class time effectively.
9. I would recommend this instructor to other students.
10. Why or why not? (Open-ended dialog box)
11. Is there anything else? (Open-ended dialog box)

AST Approved Program Level Questions:

How responsive was the program in meeting your tool and equipment needs?

How well did the instructor explain the program attendance requirements?

How helpful did you find the departments textbook and electronic information systems (Mitchell/Alldata)?

How efficient did you find the departments computers and internet access?

How well did your instructor emphasize the importance of personal safety?

Possible Course Level Questions:

How well did the instructor explain the goals of the course?

How challenging was it to meet/exceed the course curriculum/outcomes?

What did you like best about this course?

What did you like least about this course?

What would you change if you could?

Do you feel that this course has adequately familiarized you with the topics covered?

How confident are you with the concepts presented in this course?

The topics covered were relevant to the course

The training experience will be useful in my work

The media provided relevant and useful information for the course topic

The course has improved my knowledge on the subject

The duration of the course was just right

The course content was understandable

The course challenged me

Which topics did you wish there was additional training on?

The most valuable part of this course was:

This course would have been more effective if:

What did you like most about the program?

What did you like least about the program?

What would you change about the program?

Department

Professional Ethics	**1**
Reputation of integrity	1
Desire to serve customer	2
Understand customer position	3
How to handle ethical issues	4
Support opinions with facts	5
Business and Professional Communication	**2**
Listening skills	1
Teamwork	2
Active communcation	3
Effective writing	4
Phone skills	5
Reading	6
Think B-4 you speak	7
Write accurate and complete repair order	8
Ask ?'s	9
How to ask open/closed questions	10
Computer communication skills	11
How to sell work	12
Appropriate body language	13
Product knowledge	14
Speaking in "laymans" terms	15
Proper physical communication	16
Remove technical terms	17
Email skills	18
Conflict Resolution	**3**
Conflict resolution	1
Diffuse tension in some people	2
Handle irate customer	3
Professional Image	**4**
Hygiene	1
Good grooming skills	2
Manners in shop	3
Employer Communication	**5**
How to handle mistakes	1
How to take responsibility	2
Accept constructive criticism	3
Understanding employee responsibilities	4
How to communicate with manager	5
How to ask for help	6
Understand your pay	7
How to leave a job (and why-fair dispatching?)	8
How to ask for a raise	9
Questions during interview	10
Communicate with Non-Native Speakers	**6**
Command of English	1
Use english correctly	2
Adapt to non-native English speakers	3
Speak fluent Englich	4

Students

Suggested Courses for the AAS Degree in Automotive Service Technology

The following courses are suggested by the Automotive Service Program to complete the General Education requirements of the Associate of Applied Science Degree. These courses have been identified by the department as being particularly useful in improving communication, interpersonal and computer skills. These courses are by no means the only ones you may choose from and the department feels that all AAS approved courses are beneficial in improving skills.

Arts and Letters:

SP 100 Intro to Speech Communication

Social Sciences:

PSY 101 Psychology and Human Relations

Science, Mathematics and Computer Studies:

CIS 120 Computer Concepts I

AST Certificate General Education Courses to meet Communication and Human Relations Instruction.

The Automotive Department at PCC feels that we meet the needs of our students for computation through embedded instruction. We have discovered that the closest course for computation at the Sylvania Campus would be Math 20 and that this course is an added expense that we can deliver in the program as imbedded instruction.
In the categories of Human Relations and Communication, we do not feel that we have enough curriculum embedded to meet the needs of our students. We feel that the following General Education courses would help meet these needs for our students:

Human Relation – Psychology 101

Communication – Speech 100

MSD 101 – Principles of Management/Supervision

MSD 105 – Interpersonal Communication

MSD 117 – Customer Relations

Suspension and Steering (40 Questions)	Brakes (40 Questions)	Electrical/Electronic Systems (40 Questions)	Engine Performance (40 Questions)	Engine Repair (40 Questions)	Automatic Transmission and Transaxle (40 Questions)	Manual Drive Train and Axles (40 Questions)	Heating and Air Conditioning (40 Questions)
68% Pass	68% Pass	82% Pass	80% Pass	82% Pass	70% Pass	78% Pass	80% Pass
			82% Pass			92% Pass	
	68% Pass						
62% Pass	55% Pass	82% Pass			80% Pass		75% Pass
65% Pass	62% Pass	52% Pass	60% Pass	60% Pass	65% Pass	60% Pass	
72% Pass	85% Pass			72% Pass	92% Pass		85% Pass
						45% Fail	
						70% Pass	
65% Pass	65% Pass		62% Pass	80% Pass	60% Pass	75% Pass	72% Pass
68% Pass	80% Pass						80% Pass
68% Pass	85% Pass	70% Pass	72% Pass	80% Pass	78% Pass	78% Pass	82% Pass
60% Pass	65% Pass	68% Pass		75% Pass	72% Pass	65% Pass	60% Pass
62% Pass							
72% Pass	78% Pass		85% Pass	75% Pass		65% Pass	68% Pass
68% Pass	65% Pass		52% Pass			60% Pass	60% Pass
50% Pass	52% Pass				60% Pass	52% Pass	52% Pass
					78% Pass		
	65% Pass						68% Pass
					60% Pass		
Total %							
65%	**69%**	**71%**	**70%**	**75%**	**72%**	**63%**	**79%**