Annual Report for Assessment of Outcomes –
AM: Automotive Service Technology
(For Degree, Certificate or Core Outcomes)

To complete this Assessment Report, please address the questions below, and send to
learningassessment@pcc.edu **by June 20, 2011; subject** line: REPORT Assessment [SAC]

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1. Describe changes that have been implemented towards improving students' attainment of outcomes that resulted from outcome assessments <u>carried out in the previous academic</u> year.
    (Information provided here may be referenced, inserted into or summarized in Program Review 2.C.iii (for Core Outcomes) or 6.B.iii (for CTE Degree and Certificate outcomes).

The Automotive SAC is currently implementing changes to our program to better address the Critical Thinking Core Outcome. The Automotive SAC defines critical thinking in three ways:

   1) Critical thinking in troubleshooting - This is the most popular image of critical thinking in automotive repair; for example, the car dies when you shut the door. The technician breaks out wiring diagrams and exotic test equipment, performs a series of tests in logical order, and finds a solution, in the same way the scientific method is applied to problem solving in all fields.

   2) Critical thinking in craftsmanship - We generally associate craftsmanship with making works of art. It is also necessary in making things work. In automotive there are countless small tasks or steps of tasks which, done thoughtlessly, can lead to lost time, costly damage, or injury. The simple task of installing a fastener or replacing a seal may require consideration of several consequent steps and the efficacy of the performed task under various operating conditions.

   3) Critical thinking in customer relations - Effective technicians must begin their work with an understanding of the customer's needs or concerns and perform repairs mindful of how best to serve these customers. Completed repairs must be communicated to customers effectively. This is more than a process of communication because technicians must analyze and evaluate what is being communicated to perform repairs. They must draw inferences from customer comments and synthesize work results to meet customer expectations.

   Assessment of the first two definitions is well integrated in the Automotive program; they are intrinsic to building student competency as technicians. The last definition, Critical thinking in customer relations, has been the focus of attention in the last year and remains an area in need of further development.

   To this end, the department has added new Auto Shop Lab courses that are a capstone to the program. These courses are a simulation of a "live" shop environment in which the students are required to fulfill the role of a service technician. To further aid in this transition to the work environment, the automotive

department has worked in conjunction with our advisory committee to develop a vehicle inspection checklist that simulates work completed in the field. In addition to this checklist, students are required to complete electronic repair orders in which they are assessed by the instructor and staff on proper and ethical labor times, parts markup and work performed (this addresses critical thinking, computation and communication related instruction outcomes). The electronic repair orders are critiqued by the instructor for proper diagnostic protocols using the "3C'" method including customer concern, cause and correction of vehicle problems. This produces a consistent and reliable outcome from the students that meet industry practices and standards and demonstrates some ability to think critically how the customer will receive their work.

We recognize that this is a work in progress and hope to have more assessment tools up and running for Fall Term 2011 that will be used in the capstone courses. These will include a grading rubric for the repair order and inspection checklist. We would like each student during the final capstone course to submit one checklist and repair order for assessment by the instructor or an instructor panel. This data will be compiled each year and will help the department to make sure we have been adequately preparing the students for employment (attached is a copy of the repair order, vehicle checklist and preliminary rubric).

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

a. Describe the method(s) you used.

The automotive Department worked on implementing a portfolio of student work that would assist us in determining how our students met the program outcomes. We discovered in this process that while an ePortfolio is a great tool to store student artifacts that can be used for self-reflection and job searching, it is difficult to use as an assessment tool.

The department identified an industry assessment tool that will be implemented fall term 2011. We are going to use a test called the National Automotive Student Skills Standards Assessment (NA3SA) that is administered by the National Automotive Technicians Education Foundation (NATEF), the educational certifying body of the National Institute of Automotive Service Excellence (ASE), the certifier of automobile technicians. These series of tests will cover all 8 ASE subject areas and will prepare our students to take the ASE tests. The results of the tests will be broken down by institution and course. This gives the department the ability to assess how we are delivering our curriculum, the retention of information by our students and the practicality of the material being delivered.

We also use industry assessment in the form of the Cooperative Work Experience workbook. This is a jointly developed tool between the automotive department, job finding skills instructor and automotive advisory committee that was created to track and assess the work performed by the student in the cooperative work setting. While this tool has its downsides, it does give the department a glimpse at the industries views on how well our students meet program outcomes. We will take a random sample of these workbooks and compile the data each year to assess the skills shown by our students as assessed by industry. Due to the reorganization of our program, we will have our first cohort of "new" students to assess during the 2012 – 2013 academic year. We are starting to gather data for assessment but realize that the results will reflect a mix of new and old program students.

b. Results: What did you learn?

Because we found that our interpretation and assessment tools were lacking and/or still developing, we were unable to garner much information this year. We are also in a transition to a new course schedule that is necessitating the manipulation and movement of course materials. While this transition is taking place we, are finding new avenues and possibilities for assessment as can be seen from the response to the first question.

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

The automotive department knows that we have much work to do in the area of assessment but feel that with the inclusion of the NA3SA testing (which targets the entire student population) and the Capstone course repair order example (which targets only those students completing the program), we will be able to better assess our program in the 2011-2012 academic year, with a full cohort of new students to assess during the 2012-2013 academic year. With the inclusion of these assessment tools, we hope to find the areas in which we need to improve and make progress towards these goals in the 2012-2013 academic year.

Portland Community College Automotive Department Assessment Criteria

The Automotive Department at Portland Community College is using different methodologies to assess student progress in the Automotive Service Technology Program. Each year, the department will compile a representative work sample of our graduating student's portfolio work and assess using the grading rubric. We are planning on using a rubric to assess a representative sample of our student's CWE workbook entries. We feel that these two work samples can be cross-referenced giving a good idea of what outcome areas are strong and which ones are in need of improvement. The Portfolio and CWE workbooks will be evaluated by different instructors, which the department feels, will help to bring validity and reliability to the assessment of the portfolio work.

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 will be the National Automotive Student Skills Standards Assessment (NA3SA) which emulates the questions used for Professional Technician certification. All eight ASE certification areas will be assessed using the NA3SA tests and passing rates for all PCC students will be acquired in all eight ASE areas. This data will be used to determine student ability to pass the ASE certifications as well as the validity of automotive courses taught at Portland Community College. Each subject area will be broken down so that the department can assess the quality of each subject area taught.

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. We have requested assistance in the past from institutional research and have obtained very limited if any results. We would like to obtain employment information within the next 2 years (2012-2013 academic year) from the College through the Foundation and/or Institutional Research.

Portland Community College
Automotive Service Technology
Vehicle Inspection Report
Student Name_____

Year _____ Make _____ Model _____ License _____

VIN _____ Mileage _____ Production Date _____

1	2	3	COURTESY INSPECTION	1	2	3	COMPLETE INSPECTION	
			Test Drive Checks				*Under Car Checks*	
			Bulb Check/Warning Lamps				Steering Linkage/Gear	
			Headlamps				Outer Tie Rod Ends	
			Turn Lamps				Inner Tie Rod Ends	
			Brake Lamps				Left Ball Joint/s	
			Other Lamps				Right Ball Joint/s	
			Wiper Blades				Front Sway Bar Bushings	
			Under Hood Checks				Rear Sway Bar bushings	
			Engine Oil				Front Control Arm Bushings	
			Transmission Oil				Rear Control Arm Bushings	
			Power Steering Fluid				Left Axle Boots/Shaft	
			Brake Fluid				Right Axle Boots/Shaft	
			Engine Coolant/Protection				*Brake Checks*	**Specs/Actual**
			Washer Fluid				**RF Brake Pads**	/
			Fluid Leaks (Type?)				**RF Brake Rotor**	/
			Air Filter				RF Caliper	
			Cabin Filter				**LF Brake Pads**	/
			PCV Valve / Filter				**LF Rotor**	/
			Timing Belt (sticker?)				LF Caliper	
			Drive Belt/s				Front Brake Hoses	
			Coolant Hoses				**RR Brake Pads/Shoes**	/
			Power Steering Hoses				**RR Rotor / Drum**	/
			Battery / Terminals				RR Caliper/Wheel Cylinder	
			Tire Inspections				**LR Brake Pads/Shoes**	/
			Tires/Inflation/Tread Depth				**LR Rotor / Drum**	/
			Left Front				LR Caliper/Wheel Cylinder	
			Right Front				Rear Brake Hose/s	
			Left Rear				Front Wheel Bearings	
			Right Rear				Rear Wheel/Axle Bearings	

Wheel Torque Spec. _____ Verified:_____

Notes:_____

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PORTLAND COMMUNITY COLLEGE
Auto Service Technology

Student Name: Class: Date:

Year: Make: Model: Mileage:
VIN#:   License: Mfg. Date: Invoice#:

Coupe	Hatch	Sedan	Wagon	X-Cab	King Cab	½ ¾ 1Ton
PS	AC	ABS	SRS	2WD	4WD	AWD

Customer Concern:

Cause & Correction: *TIME*

Parts:	QNTY	COST

Additional Recommendations:

LABOR HRS TOTAL ☐   LABOR TOTAL @ $ PER HR ☐

PARTS TOTAL ☐

TOTAL ☐

PORTLAND COMMUNITY COLLEGE
Auto Service Technology

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Year:	Make:	Model:	Mileage:
VIN#:	License:	Mfg. Date:	Invoice#:

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TOTAL [____]