_____SOUTH SEATTLE COMMUNITY COLLEGE _____
<div align="right">Technical Education Division</div>

COURSE OUTLINE
Revision: Howard Andersen, January 2013

DEPARTMENT: Automotive Technology

CURRICULUM: Automotive Technology

COURSE TITLE: Engine Computer Inputs and Outputs

COURSE NUMBER: AUT 140

TYPE OF COURSE: Vocational Preparatory

COURSE LENGTH: 3 weeks

CREDIT HOURS: 4

LECTURE HOURS: 15

LAB HOURS: 60

CLASS SIZE: 20

PREREQUISITES: MVM 100 (Introduction to Automotive),
                          AUT 100 (Basic Electrical Systems),
                          AUT 102 (Advanced Electrical Systems),
                          AUT 104 (Automotive Electronics),
                          AUT 106 (Basic Power Accessories),
                          AUT 136 (Minor Tune-up Procedures), and
                          AUT 138 (Fuel System Servicing) or
                          equivalent, or instructor's permission

COURSE DESCRIPTION:

This course will cover the automotive engine computer, it's multiple power and ground supplies, and how these affect the running of the vehicle. It covers the inputs and outputs of the PCM, how each contributes to the running of the engine, and how to diagnose each one.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Communication - Use written and oral communication skills to fill out repair orders, work in teams, and discuss diagnosis and repair problems.
2. Information Literacy - Students will use a variety of service manuals to repair various vehicles.
3. Technology - Use appropriate technological tools to diagnose equipment of vehicles.
4. Critical Thinking and Problem Solving - Use critical thinking skills to repair a vehicle in the shop using the knowledge learned in the classroom.

PROGRAM OUTCOMES

1. Inspect, diagnose, repair, replace and service each of the major systems in various types of vehicles. (SLO 4.1)
2. Locate sources, make parts write-ups, calculate costs and explain repair or service. (SLO 2.1 & 7.1)
3. Handle customer needs, complaints, questions and special challenges. (SLO 3.1 & 3.2)
4. Access and apply manufacturer's specifications in repair and replacement. (SLO 7.1)
5. Work safely and responsibly within all shop safety and environmental guidelines and standards. (SLO 6.4 & 6.5)
6. Demonstrate ability to pass the ASE test required for NATEF certification. (SLO 1.1, 1.2 & 7.1)
7. Demonstrate computer competency for accessing data and documenting service (SLO 5.1)
8. Communicate and document service records. (SLO 1.2)
9. Compute costs, time and measurements. (SLO 2.1)
10. Work independently and in groups to service, repair, test and maintain vehicles. (SLO 3.1 & 6.3)
11. Describe employer expectations for employees within the automotive industry workplace (SLO 7.2)
12. Use technology to test vehicles. (SLO 5.1)
13. Work with accuracy, dependability, proficiency and in a timely manner, when servicing equipment. (SLO 6.3 & 6.4)

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Diagnose a faulty computer.
2. Identify each of the different computer inputs and outputs.
3. Know the difference between a mechanical and computer problem.
4. Learn the importance of using the proper service manuals.
5. Use a scan tool to diagnose problems on the cars.
6. Diagnose the different sensors, switches and solenoids used by the computer.

TOPICAL OUTLINE: APPROX. HOURS

I.	Computer operation and memories	7
II.	How the computer learns	3
III.	Computer sensors	30
IV.	Computer input switches	6
V.	Computer output switches	4
VI.	Idle control	5
VII.	Troubleshooting	20
	Total	75