DE ANZA COLLEGE
APPLIED TECHNOLOGIES DIVISION
Automotive Technology
ENGINE PERFORMANCE PROGRAM

Auto 99E Basic Engine Performance Diagnostic Procedures

I. General Information:

Instructor: Pete Vernazza
Classroom Number: El2F
Spring 2015
Office: (408) 864-8216
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Faculty website: http://faculty.deanza.edu/vernazzapete
Dates: 4-6-15 through 5-15-15
Days: Monday through Friday
Hours: 7:30 AM to 12:20 PM.
Final Examination Date: 5-15-15
CRN 00221
Drop date – http://deanza.edu/calendar/springdates.html

For Spring quarter, my office hours are 6:30 am to 7:30 am and 12:20 to 1:20pm Monday through Friday. The location will be in my classroom (E12F) or my office (E13B).

Description: Automotive technician training program to include each system which aids in increasing fuel economy and in the reduction of emissions and pollutants from the automobile. Diagnosing and troubleshooting the systems controlling automotive performance and driveability.

Student Learning Outcome - The student will be able to demonstrate how to properly retrieve DTC's from a Powertrain Control Module (PCM), retrieve Freeze Frame Data from a PCM, and retrieve Inspection/Maintenance (I/M) Readiness Status from a PCM.

II. Course Objectives

A. Explain the causes of automotive emissions.
B. Identify the components that comprise the different emission control systems.
C. Explain the function of the individual system components.
D. Diagnose system and component problems.
E. Adjust or repair system problems.
F. Identify and inspect emission control systems and individual components using an Emissions Application Manual.
G. Explain principles of operation of basic automotive performance systems.

III. Essential Student Materials

Texts as listed
Basic tool set and tune-up tool set
Approved shop clothing, safety shoes, and safety glasses

IV. Essential College Facilities

Classroom and automotive technology laboratory

V. Expanded Description: Content and Form

A. Explain the causes of automotive emissions

1. Chemistry of pollution
2. Sources of automotive emissions
3. Four-gas analyzers

B. Identify the components that comprise the different emission control systems

1. Sources of blowby gases
2. PCV system principles of operation
3. Identify PCV system types
4. System testing and servicing techniques

C. Explain the function of the individual system components

1. Sources of fuel evaporation
2. Evaporative system principles of operation
3. Identify EEC system components
4. System testing and servicing techniques

D. Diagnose system and component problems

1. Sources of exhaust emissions
2. Exhaust emission system principles of operation
3. Identify system components
4. System testing and servicing techniques

E. Adjust or repair system problems

1. Theory of operation
2. Component identification
3. Vacuum circuitry
4. Electrical circuitry

F. Identify and inspect emission control systems and individual components using and Emissions Application Maunual

1. Using an emissions application manual
2. Identifying types of emission equipment

G. Explain principles of operation of basic automotive performance systems

1. Battery, cranking, and charging systems and components
2. Ignition systems
3. Computer systems
4. Fuel supply systems
5. Emission control systems

VI. Assignments

A. Reading from texts and handouts
B. Lab assignments per expanded National Automotive Technology Education Foundation (NATEF) task list

VII. Methods of Instruction

Lecture and visual aids
Discussion of assigned reading
Discussion and problem solving performed in class
Quiz and examination review performed in class

VIII. Methods of Evaluating Objectives

A. Problem-solving quizzes
B. Objective examinations covering major lecture topics
C. Objective final examination
D. Lab assignments per NATEF task list
E. Participation in accordance with department policy

IX. Texts and Supporting References

A. Required Texts

1. Halderman, James D. “Advanced Engine Performance” Prentice Hall, New York, 2009

B. Supporting Texts and References

1. All Data electronic information system
2. Mitchell On-Demand electronic information system

X. Classroom and Lab Conduct

1. Students will be dismissed from class for disruptive behavior per college policy
2. Students *will wear safety glasses*, coveralls, and work shoes for the duration of labs. Wear coveralls properly.

http://www.deanza.edu/studenthandbook/academic-integrity.html

XI. Grading System

90 to 100% = A
80 to 89% = B
70 to 79% = C
60 to 69% = D
59% or lower = F

Per department policy, a minimum grade of “C” is required. Grades less than “C” in two courses are cause for dismissal from the program.