SOUTHEAST COMMUNITY COLLEGE
TRANSPORTATION OCCUPATIONS
AUTOMOTIVE TECHNOLOGY
COURSE SYLLABUS
January 24, 2023

I. CATALOG DESCRIPTION

Course Number: AUTT2208
Course Title: Engine Performance
Prerequisite(s): AUTT1111, AUTT1116

Catalog Description: Advanced engine performance includes fuel systems, ignition systems and vehicle drivability. Practical experience is gained through the inspection, service and repair of computer engine control systems.

Credit Hour: 5 . 5
Class Hours: 30
Lab Hours: 158
Total Contact Hours: 188

II. COURSE OBJECTIVES: *Course will:*

A. Cover engine performance
B. Cover service information
C. Cover engine mechanical testing
D. Cover ignition systems
E. Cover fuel systems
F. Cover diagnostic trouble codes
G. Cover OBD Monitors
H. Cover drivability concerns
I. Cover injectors
J. Cover variable camshaft timing
K. Cover positive ventilation crankcase system
L. Cover vehicle emissions
M. Cover the inspection, service, and repair of the advanced computer control system

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. STUDENT LEARNING OUTCOMES: *Student will be able to:*

1. Identify and interpret engine performance concerns; determine needed action.
2. Research vehicle service information including vehicle history, service precautions, and technical service bulletins (TSB'S).
3. Perform cylinder cranking and/or running compression tests; determine needed action.
4. Diagnose the cause of excessive oil consumption, coolant consumption, unusual

exhaust color, odor, and sound; determine need action.

5. Retrieve and record diagnostic trouble codes (DTC), OBD monitor status, and freeze frame data; clear codes when applicable.
6. Describe the use of OBD monitors for repair verification.
7. Diagnose hot or cold no-start, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, misfire, and poor mileage and emission problems; determine needed action.
8. Inspect, service or replace vehicle air filters, filter housings and duct work.
9. Inspect, test and/or replace fuel injectors.
10. Verify correct camshaft timing including engines equipped with variable valve timing systems (VVT).
11. Diagnose oil leaks, emissions and driveability concerns caused by the positive crankcase ventilation (PCV) system; determine needed action.
12. Explain the types of emissions produced by vehicles and the regulations relating to vehicles.
13. Diagnose emissions and driveability concerns caused by catalytic converters.
14. Demonstrate the ability to properly diagnose, replace or repair individual components in the automotive ignition systems.
15. Demonstrate the ability to properly diagnose, replace or repair individual components in the automotive fuel systems.

B. GENERAL EDUCATION LEARNING OUTCOMES

GELO #3: Critical Thinking & Problem Solving

1. Collect, identify, interpret and analyze data.

IV. CONTENT/UNIT OF INSTRUCTION

A. Electrical operation of ignition and fuel systems
B. Drivability maintenance procedures
C. Computer performance testing
D. Emission testing procedures
E. Computer controls
F. Computer testing procedures
G. Service equipment operation and usage
H. Shop procedures and safety

V. INSTRUCTIONAL MATERIALS

The Course Information Document lists the current text(s) required for this class. The list is also available in the campus bookstore. The Course Information Document also lists the tools/equipment or other supplies required for this class.

VI. METHODS OF PRESENTATION / INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Small and large group discussion
3. Video presentation
4. Demonstrations
5. Project boards

6. Handouts
7. Observations
8. Assigned lab projects
9. Online information
10. Field trips.

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Notebook (if required)
2. Quizzes
3. Tests
4. Lab grades
5. Attendance/class conduct

Letter grades will be based on the SCC Standard Grade Scale Policy. **Note:** See Course Information Document for specific details on how the course grades will be calculated.

VIII. SPECIFIC COURSE REQUIREMENTS

A. Student must:

1. Complete all tests, projects, assignments, and notebook (if required).

B. Attendance:

1. Student must follow Attendance Policy as stated in the college student handbook, automotive lab and classroom policies handbook or Course Information Document.

C. Shop safety rules will be followed.

D. Any additional course requirements as stipulated by the Instructor.