



**BAKER COLLEGE**  
**STUDENT LEARNING OUTCOMES**

**AST 2510A Engine Performance II**  
**4 Semester Hours**

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**Student Learning Outcomes & Enabling Objectives**

1. Demonstrate fuel, air induction, and exhaust system diagnosis and repair techniques.
  - a. Diagnose (troubleshoot) hot or cold no-starting, hard starting, poor driveability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems; determine needed action. P-2
  - b. Check fuel for contaminants; determine needed action. P-2
  - c. Inspect and test fuel pump(s) and pump control system for pressure, regulation, and volume; perform needed action. P-1
  - d. Replace fuel filter(s) where applicable. P-2
  - e. Inspect, service, or replace air filters, filter housings, and intake duct work. P-1
  - f. Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air. P-2
  - g. Inspect, test, and/or replace fuel injectors. P-2
  - h. Verify idle control operation. P-1
  - i. Inspect integrity of the exhaust manifold, exhaust pipe, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shields; perform needed action. P-1
  - j. Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine needed action. P-1
  - k. Perform exhaust system back-pressure test; determine needed action. P-2
  - l. Check and refill diesel exhaust fluid (DEF). P-2
  - m. Test the operation of turbocharger/supercharger systems; determine needed action. P-2
  
2. Demonstrate emission control systems diagnosis and repair techniques.
  - a. Diagnose oil leaks, emissions, and driveability concerns caused by the positive crankcase ventilation (PVC) system; determine needed action. P-3

- b. Inspect, test, service, and/or replace positive crankcase ventilation (PCV) filter/breather, valve, tubes, orifices, and hoses; perform needed action. P-2
- c. Diagnose emissions and driveability concerns caused by the exhaust gas recirculation (EGR) system; inspect, test, service and/or replace electrical/electronic sensors, controls, wiring, tubing, exhaust passages, vacuum/pressure controls, filters, and hoses of exhaust gas recirculation (EGR) systems; determine needed action. P-2
- d. Diagnose emissions and driveability concerns caused by the secondary air injection system; inspect, test, repair, and/or replace electrical/electronically-operated components and circuits of secondary air injection systems; determine needed action. P-2
- e. Diagnose emissions and driveability concerns caused by the evaporative emissions control (EVAP) system; determine needed action. P-1
- f. Diagnose emission and driveability concerns caused by catalytic converter system; determine needed action. P-2 g
- g. Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems; determine needed action. P-2

Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

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These SLOs are not approved for experiential credit.

**Effective: Fall 2018**