HIBBING COMMUNITY COLLEGE
COURSE OUTLINE

COURSE NUMBER & TITLE: ASES 2026: Advanced Engine Performance
CREDITS: 4 (2 Lec / 2 Lab)
PREREQUISITES: Instructor approval.

CATALOG DESCRIPTION:
Advanced Engine Performance course expands upon the knowledge learned in ASES 2027 (Auto Computers). OBDII (On Board Diagnostic 2nd generation) operation and program logic will be covered. Diagnosis and repair of drivability problems associated with OBD II systems will be taught in this course. Practical exercises on school vehicles reinforce learned knowledge with hands-on experience.

OUTLINE OF MAJOR CONTENT AREAS:
1. Safety precautions
2. Digital Scope advanced usage
3. Basic engine performance review
   A. Controller inputs
   B. Controller outputs
   C. Basic system operation and strategy
4. OBDII operational logic
5. OBDII hardware differences
6. System monitors operation
7. Scan-Tool usage on OBDII systems
8. GM OBDII systems
9. Daimler Chrysler OBDII systems
10. Ford OBDII Systems
11. Generic OBDII
12. Hybrid vehicles
13. Light diesel

COURSE GOALS/OBJECTIVES/OUTCOMES:
1. Students will identify hybrid vehicle internal combustion engine service precautions.
2. Students will identify high voltage of electric or hybrid electric vehicles and related safety procedures.
3. Students will retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data and clear codes when applicable.
4. Students will diagnose the causes of emissions or drivability concerns with stored or active diagnostic trouble codes and obtain, graph, and interpret scan tool data.
5. Students will diagnose (troubleshoot) hot or cold no-starting, hard starting, poor drivability, incorrect idle speed, poor idle, flooding, hesitation, surging, engine misfire, power loss, stalling, poor mileage, dieseling, and emissions problems and necessary action.
6. Students will check fuel for contaminants; determine necessary action.

MNTC GOALS AND COMPETENCIES MET:
N/A

HCC COMPETENCIES MET:
Working Productively & Cooperatively
Communicating Clearly & Effectively
Thinking Creatively & Critically

STUDENT CONTRIBUTIONS:
The student will:
   1. Attend all class sessions.
   2. Participate in class activities and discussions.
   3. Request assistance when needed.
   4. Complete and hand in assigned work when due.

Attendance is critical: if the student is not present, they cannot participate in or contribute to the learning process.

STUDENT ASSESSMENT SHALL TAKE PLACE USING INSTRUMENTS SELECTED/DEVELOPED BY THE COURSE INSTRUCTOR.

ADDITIONAL INFORMATION:
Tasks lists, handouts, and other materials will be provided.
Safety glasses are required in the lab.

Curriculum Committee Approval Date: April 3, 2018

AASC APPROVAL DATE: April 18, 2018
REVIEW DATE: April 2023