Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the College-wide Curriculum Committee.

DEPT: Automotive

COURSE NO: AUTO 2121

COURSE TITLE: Engine Performance II

CATALOG DESCRIPTION:

Know the necessary skills to diagnose and repair all systems related to engine performance. It teaches the theory and repair of automotive engine systems. It includes ignition systems, emission controls, electronic engine controls, and engine performance diagnosis.

5 credits (2 lecture, 3 lab) 144 hours

AUDIENCE: Auto students

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable) Area : by meeting the following competencies:

Area : by meeting the following competencies:

Area : by meeting the following competencies:

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: NA

LENGTH OF COURSE: 24 days @ 6 hours a day = 144 hours

THIS COURSE IS USUALLY OFFERED:

Every year X Every other year

Fall X Spring Summer Undetermined

Four goals are emphasized in course at Minnesota West Community & Technical College:
ACADEMIC CONTENT: Prove students can master the proper techniques necessary to diagnose, adjust, and repair the computer system, throttle body, port, and sequential fuel injection systems.

THINKING SKILLS:

A. To use different situations to diagnose & troubleshoot problems in computer system.

B. To be able to think through how all of the internal components of the computer system work

COMMUNICATIONS SKILLS:

A. Participation in class discussion.

B. Complete written reports and assignments

C. To improve oral communications skills through class presentations

HUMAN DIVERSITY:

A. To understand the roles of the technician in communicating with a diverse population.

B. To work effectively in teams comprised of diverse backgrounds.

C. To express personal philosophies on diverse issues.

TOPICS TO BE COVERED:

1. GM computer system fundamentals
2. Sensors, throttle body injection, port fuel injection
3. Scanners
4. OBD II
5. Diagnosing and repair of computer systems

COURSE LEARNING OUTCOMES: To gain overall knowledge of how computers work with sensors and actuators to make the vehicle perform with excellent driveability situations. The required outcomes follow the Auto Service Technician (AST) model of the National Automotive Technical Education Foundation (NATEF) certification program.
LEARNING/TEACHING TECHNIQUES USED IN THIS COURSE:

- Collaborative Learning
- Problem Solving
- Student Presentations
- Interactive Lectures
- Creative Projects
- Individual Coaching
- Lecture
- Films/Videos/Slides
- Demonstrations
- Other (describe below)
- Lab
- Periodical Research and Summary

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- Reading
- Tests
- Individual Projects
- Oral Presentations
- Worksheets
- Collaborative Projects
- Textbook Problem
- Papers Portfolio
- Group Problems
- Term Paper
- Other: NATEF Tasks

EXPECTED STUDENT LEARNING OUTCOMES:

Upon completion of this course the student will be able to:

1. Identify integrity of exhaust system
2. Diagnose abnormal oil leaks, emissions, fuel
3. Perform exhaust system back pressure testing
4. Diagnose driveability concerns
5. Inspect, test, PCV system
Experience and pursue rigorous learning and complete performance standards. Be able to diagnose and repair vehicles.

For every task in Engine Performance, the following safety requirement must be strictly enforced:

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 standards.

**Veteran Services**: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.