AUTO 2802

Division: Career and Technical Education
Department: Automotive Technology
Course: AUTO 2802
Title: Automotive Engine Performance
Catalog Description:
Students will cover diagnosis, adjustment, and repair of the systems which affects engine performance. Use of diagnostic equipment is emphasized.
General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 5; Lecture: 3; Lab: 6
Clock/Hour Requirements: 135
Offered for Non-Credit: No
Prerequisites: AUTO 2801

Corequisites: None

Justification:
This course is required for Automotive Service Excellence (ASE) certification. It is approved by the program advisory committee.

Student Learning Outcomes:
Upon successful completion of this course, students will be able to safely perform the tasks listed in the current edition of *ASE Certification For Automobile Training Programs*.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- computers in cars
- on-board diagnostic (OBD) systems
- General Motors computer command control
- General Motors electronic fuel injection
- Cadillac digital fuel injection
- Ford microprocessor control unit
- Ford electronic engine control (EEC) I and EEC II
- Ford EEC III and EEC IV
- Chrysler oxygen feedback system
- Chrysler single-point and multipoint fuel injection systems
- Chrysler multiplexing and computer developments

- European engine control systems
- Asian computer control systems
- OBD II self-diagnostics
- related computer systems.

General Education Outcomes:

1) Read effectively, constructively, and critically.
Students will read the required text, shop manuals, and reference materials, as well as other assigned readings. Students must be able to answer questions on exams and synthesize information into laboratory experiences.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.
Students will utilize electronic and written reference manuals and computer diagnostics to identify, troubleshoot, and repair engines, and other vehicle components.

5) Apply a cultural and historical awareness to a variety of phenomena.
Students will develop an understanding of the history of automobile development and its relationship to past, current, and future developments in the automotive field.

6) Apply computational skills to a variety of contexts.
Students are required to perform mathematic computations with regard to engines and other vehicle components. Familiarity with the binary numbering system and computer generated matrices is emphasized.

7) Apply scientific reasoning to a variety of contexts.
Students will participate in electrical, transmission, engine performance, and other diagnostic procedures.

Key Performance Indicators:

In class:

- Students shall be required to complete chapter assignments (60%) and pass a final test (40%), In addition, students are required to perform shop tasks (P1 tasks 100%, P2 tasks 90%, and P3 tasks 80% to pass course) as outlined in the current edition of *ASE Certification For Automobile Training Programs.*

Following class:

- Course evaluation will be demonstrated by the following methods:
  - student feedback as per ASE requirements
  - students passing ASE tests
  - students transferring to other post secondary institutions
  - student performance in subsequent courses.

Representative Text and/or Supplies:

- Knowles, Don and Erjavec, Jack, *Automotive Engine Performance,* current edition, Thomson/Delmar Learning.

- King, Dick H., *Computerized Engine Controls*, current edition, Thomson/Delmar Learning.

Optimum Class Size: 10
Maximum Class Size: 18

Signatures:

I hereby submit this course syllabus:

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I hereby find this course consistent with the goals and resources of the Automotive Technology Department:

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Brent Reese, BS, Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

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Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)