AUTO 2801 (formerly AUTO 2800)

Division: Career and Technical Education
Department: Transportation Technology
Course: AUTO 2801 (formerly AUTO 2800)
Title: Automotive Engine Performance
Catalog Description:

Students will cover diagnosis, adjustment, and repair of the systems which affects engine performance. Emphasis will be placed on computerized engine control systems of various makes. Use of diagnostic e quipment is emphasized. **Co-requisite: The lecture AUTO 2801 must be taken concurrently with the lab A UTO 2805.**

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0
Clock/Hour Requirements: 45
Offered for Non-Credit: Yes
Prerequisites: N/A

Corequisites: AUTO 2805

Justification:

This course is required for Automotive Service Excellence (A.S.E.) certification. It is approved by the advisory committee for an AAS degree in Automotive Tehnology.

Student Learning Outcomes:

Upon successful completion of this course, students will be able to safely perform the tasks listed in the current edition of *A.S.E. 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 multi-point 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 air conditioning and heating systems, and other 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 filed.

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.

Applied Education Outcomes:

1) Students will acquire entry-level skills specific to and appropriate for employment in their chosen field of study.

Students will utilize electronic and written reference manuals and computer diagnostics to identify, troubleshoot, repair engines, engine performance, and other vehicle components.

3) Students will demonstrate safe practices and awareness of potential hazards in their field of expertise.

Students will study, test on, and practice a safe work environment in the lab area.

Key Performance Indicators:

Student Learning Outcomes will be assessed by two or more of the following Key Performance Indicators:

- chapter assignments
- final test
- shop cleanup
- feedback as per A.S.E. requirements
- passing A.S.E. tests
- transferring to other post-secondary institutions
- 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: 15
Maximum Class Size: 25

Signatures:

I hereby submit this course syllabus:

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Brent Reese, BS, Associate Professor

I hereby find this course consistent with the goals and resources of the Transportation 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:

_____

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

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)