



AUTO 1002

Division: Career and Technical Education

Department: Transportation Technology

Course: AUTO 1002

Title: Automotive Technology II

Catalog Description:

This course covers the principles of emission controls, engine performance, clutches and manual transmissions, automatic transmissions, drive shafts and axles, suspension and steering, wheels and tires, brakes, battery fundamentals, electrical systems, starting systems, charging systems, lighting and wiring, and ignition systems.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 6; Lecture: 5; Lab: 4

Clock/Hour Requirements: 135

Offered for Non-Credit: Yes

Prerequisites: AUTO 1000

Corequisites: N/A

Justification:

This course is approved by the advisory program committee and prepares students for Automotive Service Excellence (A.S.E.) certification.

Student Learning Outcomes:

Upon successful completion of this course, students will be able to:

- know emission systems past and present
- repair and test fuel and emission control systems
- demonstrate clutch and transmission repair
- service automatic transmissions
- repair and replace U joints and drive axles
- demonstrate suspension and steering maintenance and alignment
- describe wheels and tires and demonstrate tire repair
- demonstrate brake repair and bearing adjustment
- perform engine performance repairs
- demonstrate battery fundamentals
- perform electrical systems repairs
- service starting systems

- service charging systems
- perform light and wiring repairs
- repair ignition systems.

Content:

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

- testing fuel pumps, replacing fuel filters, testing fuel pressure
- adjusting clutch and service transmissions
- servicing automatic transmissions
- servicing drive shafts and drive axles
- servicing suspension and steering
- wheels, tire wear, and tire repair
- brake shoes, brake pads, drums, and rotors
- brakes
- battery fundamentals
- electrical systems
- starting systems
- charging systems
- lighting and wiring
- ignition systems.

General Education Outcomes:

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, transmissions, brakes, and other vehicle components.

6) Apply computational skills to a variety of contexts.

Students are required to perform mathematic computations with regard to electrical systems, gear ratios, force pressures, and a variety of other vehicle systems. Familiarity with the binary numbering system and computer generated matrices is emphasized.

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, and repair engines, transmissions, brakes, 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:

- oral tests
- chapter classroom assignments
- written tests
- practical application of theoretical skills
- student feedback as per ASE requirements
- students transferring to other post secondary institutions
- student performance in subsequent courses.

Representative Text and/or Supplies:

- Tim Gilles, *Automotive Service*, current edition, Thomson/Delmar Learning.
- Instructional materials as directed by instructor

Optimum Class Size: 10

Maximum Class Size: 18

Signatures:

I hereby submit this course syllabus:

Brent Reese, BS, Associate Professor

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

Brent Reese, BS, Associate Professor, Chair

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

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)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)