AUTO 2700

Division: Career and Technical Education
Department: Automotive Technology
Course: AUTO 2700
Title: Automotive Heating and Air Conditioning
Catalog Description:

Students will cover the principles, operation, and servicing of automotive air conditioning and heating systems and their components.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 4; Lecture: 2; Lab: 5
Clock/Hour Requirements: 105
Offered for Non-Credit: No
Prerequisites: None

Corequisites: None

Justification:

This course is required for Automotive Service Excellence (A.S.E.) 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 *A.S.E. Certification For Automobile Training Programs*.

Content:

Upon completion of this course, students understand and will be able to explain:

- safety
- matter, heat, and pressure as related to air conditioning
- principles of refrigeration
- the refrigeration circuit
- temperature - pressure relationship
- moisture and moisture removal
- temperature and pressure control devices

- case/duct systems
- automatic temperature controls
- air conditioning system diagnosis
- refrigerant recovery, charging the system
- retrofit R-12 to R-134a
- air conditioning handling and recovery certification (required)
- troubleshooting the heater system

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 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 field.

Key Performance Indicators:

In class:

- Students shall be required to complete chapter tests (50% of the grade), and pass a final test (50% of the grade). 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 *A.S.E. Certification For Automobile Training Programs*.

Following class:

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

Representative Text and/or Supplies:

- Dwiggins, Boyce H., *Automotive Air Conditioning*, current edition, Thomson/Delmar Learning.

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 Automotive 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)