



AUTO 2700

Division: Career and Technical Education

Department: Automotive Technology

Course: AUTO 2700

Title: Automotive Automatic Transmissions and Transaxles

Catalog Description:

This course covers theory, operation, diagnosis, and overhaul procedures of automotive automatic transmissions and transaxles, including planetary gearing, valve bodies, computerized transmission controls, and torque converter lock-up.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 5; Lecture: 2; Lab: 9

Clock/Hour Requirements: 165

Offered for Non-Credit: No

Prerequisites: AUTO 1102

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:

- safety
- torque converters
- torque converter clutch control
- planetary gear operation
- planetary gear systems in transmissions/transaxles
- hydraulic fundamentals
- pumps and valves
- hydraulic operation in transmissions/transaxles
- fluid and seals
- electronic shift control circuits

- diagnosis of torque converter and torque converter clutch
- diagnosis of electronic shift control circuits
- transmission/transaxle removal and installation
- transmission/transaxle disassembly
- transmission/transaxle overhaul practices
- sub-assembly reconditioning
- transmission/transaxle assembly practices
- Chrysler automatic transmission/transaxle summaries
- Ford automatic transmission/transaxle summaries
- General Motors automatic transmission/transaxle summaries.

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 transmissions and other related components.
- 6) Apply computational skills to a variety of contexts. Students are required to perform mathematic computations with regard to gear ratios, force pressures, and a variety of other vehicle systems. 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 transmission 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:

- Erjavec, Jack, Ronald, *Automatic Transmissions and Transaxles*, current edition, Thomson/Delmar Learning.

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)