COURSE INFORMATION FORM

DISCIPLINE: Automotive Technology
COURSE TITLE: Automatic Transmissions and Transaxles

CR.HR: 6  LECT HR: 3  LAB HR: 6  CLIN/INTERN HR:  

CATALOG DESCRIPTION

This course incorporates history, theories of operation, testing, diagnosis and repair of automatic transmissions and transaxles. Hydraulic theory, torque multiplication factor, and planetary gear set operation will be covered in detail. Proper disassembly and reassembly procedures will be emphasized.

PREREQUISITES

AUTO 100, AUTO 166, and one of the following: AUTO 150, AUTO 172, AUTO 174, AUTO 276, AUTO 278, AUTO 280.

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

Upon completion of this course, the student will be able to:

1. Demonstrate the cognitive and manipulative skills necessary to complete assigned tasks.
2. Describe and employ safe work habits, observing both personal safety and a concern for the safety of others.
3. Analyze, diagnose and determine necessary actions to solve automatic transmission and transaxle concerns.
4. Apply procedures needed to successfully perform service operations.
5. Employ effective behaviors necessary to successfully work with others.

GENERAL EDUCATION OUTCOMES (ESO)

Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>ESO</th>
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Revised 5/9/13
PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

1. Students will demonstrate the knowledge necessary to obtain recognized certifications.
2. Students will demonstrate or apply knowledge of basic sciences to the practices of automotive technology.
3. Students will demonstrate the knowledge and application of safety rules and regulations.
4. Students will exhibit professional behavior.
5. Students will be able to use mathematics as it pertains to the automotive technicians.

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Written evaluation (1-4)
2. Oral evaluation (1-5)
3. Performance exam (1-4)
4. Written laboratory assignments (1-5)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Introduction
   A. Safety
   B. Shop Rules
   C. Tools
   D. Equipment

II. General Theory of Operation
   A. History
   B. Power train components

III. Gears and Gear Sets
   A. Gear ratios
   B. Planetary gear sets
   C. Compound planetary gear sets

IV. Hydraulic Fundamentals
   A. Hydraulic principles
   B. Simple hydraulic systems

V. Transmission hydraulic systems
   A. Pressure control
   B. Transmission shifting and shift operations

VI. Fluid couplings and torque converters
   A. Fluid couplings
   B. Torque converter
   C. Lockup torque converter

VII. Apply devices
   A. Bands
   B. Hydraulic Servos
   C. Accumulators
   D. Multiple-disc clutches
   E. Clutch operations

VIII. Transmission fluids, filters and coolers
   A. Transmission fluid properties
   B. Friction and antifriction properties
   C. Filter and filter materials
D. Cooler: internal and external

IX. Electronic transmission and transaxle controls
   A. Computer Control
   B. On board diagnostics
   C. Sensors and actuators
   D. TCC requirements

X. Constantly Variable Transmissions (CVT’s) operation

XI. Hybrid transmission operation