

**AUT 221**  
**AUTOMATIC TRANSMISSIONS**

**COURSE DESCRIPTION:**

Prerequisites: AUT 231

Corequisites: None

This course covers operation, diagnosis, service, and repair of automatic transmissions and transaxles. Topics include hydraulic, pneumatic, mechanical, and electrical and electronic operation of automatic drive trains and the use of appropriate service tools and equipment. Upon completion, students should be able to explain operational theory and diagnose and repair automatic drive trains. Course Hours Per Week: Class, 2. Lab, 6. Semester Hours Credit, 4.

**COURSE OBJECTIVES:**

After completing the course requirements, the student will be able to:

- a. Troubleshoot the various automatic transmissions.
- b. Service, make adjustments, and repair automatic transmissions and transaxles.
- c. Properly use service information to identify and repair automatic transmissions and transaxles.

**OUTLINE OF INSTRUCTION:**

- I. Class orientation
  - A. Class routine and lab policy
  - B. Required materials
  - C. Automotive lab safety
  - D. Lab equipment/operation
  
- II. High pressure hydraulics
  - A. Pumps
  - B. Lines
  - C. Pressure regulator valves
  - D. Servos
  - E. Fluid clutches
    1. Fluid couplings
    2. Torque converters
      - a) Standard
      - b) Lock up type
  
- III. Controls
  - A. Valve body
    1. Manual valve
    2. Other valves
  - B. Modulators
  - C. Governors
  - D. Lock up converter valve (review)

- IV. Mechanical systems
  - A. Planetary gear
  - B. Converter (input to)
  - C. Pumps
    - 1. Front
    - 2. Rear (early)
    - 3. Band operation
    - 4. Clutches
  
- V. Seals
  - A. Types
    - 1. Static seals
    - 2. Dynamic seals
    - 3. Internal and external
    - 4. Lip seals and O-rings
  - B. Purpose
  - C. Design
  - D. Replacement
  
- VI. Fluids
  - A. Types
  - B. Characteristics
  - C. Purpose
  
- VII. Servicing, adjusting and overhaul
  - A. GM automatics/transaxles
  - B. Chrysler automatics/transaxles
  - C. Ford automatics/transaxles
  - D. Import automatics/transaxles (selected)

**REQUIRED TEXTBOOKS AND MATERIALS:**

Automatic Transaxles and Transmissions, Delmar.

Tools as listed in the "Durham Technical Community College Tool List for Automotive Systems Technology Students."

**STATEMENT OF STUDENTS WITH DISABILITIES:**

Students who require academic accommodations due to any physical, psychological, or learning disability should request assistance from the Disability Services Coordinator within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to the Disability Services Coordinator within the first two weeks of class. The Coordinator can be contacted by calling 686-3652, (V/TT), or by visiting the Student Services Office, Room 23, of the White Building.