J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 251 **Credits: 3**

Course Title: Automatic Transmissions

Course Description:

Studies several types of automatic transmissions/transaxles, torque converters, and their principles of operation. Includes adjustment, maintenance, and rebuilding.
Prerequisites: Completion of AUT 101 and AUT 241 is preferred. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week. 3 credits

General Course Purpose:

To examine theory and functioning of automotive automatic transmissions/transaxles and perform diagnosis and repair of automatic transmissions/ transaxles. Safety will be emphasized.

Course Prerequisites and Co-requisites:

Prerequisites: Completion of AUT 101 and AUT 241 is preferred.

Student Learning Outcomes:
Upon completing the course, the student will be able to

- Identify the basic design and operation of standard and lockup torque converters;
- Describe the construction and operation of planetary gears, Simpson gear train, Ravignaux gear train, planetary gear sets in tandem, and Lepelletier systems;
- Describe the operation of, and perform service on, automatic transmissions/transaxles;
- Identify and perform various pressures testing in transmission/transaxles;
- Describe what determines shift characteristics;
- Identify the input and output devices in a typical electronic control system and briefly describe the function of each;
- Diagnose hydraulic and vacuum controls systems; and
- Describe the basic steps for overhauling a transmission/transaxle.

Major Topics to Be Included:

- Torque Converters
- Continuously Variable Transmissions (CVT)
- Planetary Gears
- Transmission Clutches
- Final Drives and Differentials
- Hydraulic Controls
- Electronic Controlled Automatic Transmissions/Transaxles
- Automatic Transmission/Transaxle Overhaul
- Automatic Transmission/Transaxle Diagnosis

Effective Date/Updated: April 4, 2018