J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 251 **Credits:** 4

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: AUT 101 and AUT 241 are preferred. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

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: AUT 101 and AUT 241 are preferred.

Student Learning Outcomes:
Upon completing the course, the student will be able to
a. Explain the basic design and operation of standard and lockup torque converters;
b. Describe the construction and operation of planetary gears, Simpson gear train, Ravignaux gear train, planetary gear sets in tandem, and Lepelletier systems;
c. Explain the operation of, and perform service on, automatic transmissions/transaxles;
d. Identify and perform various pressures testing in transmission/transaxles;
e. Describe what determines shift characteristics;
f. Identify the input and output devices in a typical electronic control system and briefly describe the function of each;
g. Diagnose hydraulic and vacuum controls systems; and
h. Describe the basic steps for overhauling a transmission/transaxle.

Major Topics to Be Included:
a. Torque Converters
b. Continuously Variable Transmissions (CVT)
c. Planetary Gears
d. Transmission Clutches
e. Final Drives and Differentials
f. Hydraulic Controls
g. Electronic Controlled Automatic Transmissions/Transaxles
h. Automatic Transmission/Transaxle Overhaul
i. Automatic Transmission/Transaxle Diagnosis

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