

Course Objectives/Course Outline
Spokane Community College

Course Title: Toyota Manual Transmission Application

Prefix and Course Number: AUTO 139

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Inspect and diagnose all types of automobile transmissions and transaxles.
- Inspect and diagnose manual drive trains, axles, and differential.

Course Outline:

- I. Transmission Diagnosis and Repair
 - A. Diagnose transmission noise, hard shifting, jumping out of gear, and fluid leakage problems; determine needed repairs.
 - B. Inspect, adjust, and replace transmission shift linkages, brackets, bushings, cables, pivots, and levers.
 - C. Inspect, replace and align power train mounts
 - D. Inspect and replace transmission gaskets, seals, and sealants; inspect sealing surfaces.
 - E. Remove and reinstall transmission
 - F. Disassemble, clean, and reassemble transmission components
 - G. Inspect, adjust, and reinstall transmission shift cover, forks, grommets, levers, shafts, sleeves, detent mechanisms, interlocks, and springs
 - H. Inspect and reinstall input (clutch) shaft and bearings.
 - I. Inspect and reinstall main shaft, gears, thrust washers, bearings, and retainers.
 - J. Inspect and reinstall synchronizer hub, sleeve, keys (inserts), springs, and blocking rings
- II. Clutches
 - A. Linkage
 - B. Cables
 - C. Automatic Adjuster Mechanisms
 - D. Hydraulic Clutch
 1. Slave
 2. Master
 - E. Pilot Bearings
 - F. Flywheel
 - G. Bell Housing
 - H. Transmission Case
 - I. flywheel to block Runout
 - J. Crankshaft End Play
 - K. Clutch Bell Housing
- III. Drive shafts and Universal Joints
 - A. Front Wheel Drive
 1. constant velocity universal joint
 - B. Rear Wheel Drive

- IV. Rear Axles
 - A. Ring and Pinion Gears
 - B. Differential Case
 - C. Limited Slip differential
 - 1. clutch components
 - 2. rotating torque