

Print Date: 7/14/14  
**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title:** Toyota Automatic Transmission Applications  
**Prefix and Course Number:** Auto 141

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**Course Learning Outcomes:**

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

A student should learn diagramming methods used in electrical wiring systems:

- Inspect and diagnose late model transmissions/transaxles and perform necessary repairs
- Overhaul sub-assemblies
- Inspect and diagnose steering systems and perform necessary repairs.
- Diagnose and repair oil pumps and converters
- Diagnose noise/vibrations causes in transmissions
- Diagnose and repair gear trans, shafts, and bushings
- Diagnose and repair friction and reaction units
- Diagnose and repair steering systems.

**Course Outline**

- I. Repair and Diagnosis of Automatic Transmissions/Transaxles
  - A. Causes of Noise/Vibration
  - B. Fluids
    1. usage
    2. level
    3. condition
    4. types
  - C. Pressure
  - D. Lock-up Converter Systems
  - E. Vacuum Control Systems
    1. electronic
    2. mechanical
  - F. Electronic Sensors
  - G. In-Car Transmissions
  - H. Off-Car Transmissions
- II. Repair and Diagnosis of Oil Pump and Converters
  - A. Converters
    1. flex plate
    2. torque converter
    3. stator clutch
  - B. Oil Pumps
    1. housings
    2. shafts
    3. rotors
    4. gears
    5. valves
    6. seals
    7. bushings
- III. Repair and Diagnosis of Gear Trains, Shafts, and Bushings
  - A. Gear Trains
    1. inspection

- 2. diagnosis/repair/replacement
- B. Shafts
  - 1. inspection
  - 2. diagnosis/repair/replacement
- C. Bushings
  - 1. inspection
  - 2. diagnosis/repair/replacement
- IV. Diagnosis and Repair of Friction and Reaction Units
  - A. Clutch Assembly
    - 1. drum
    - 2. piston
    - 3. springs
    - 4. retainers
    - 5. seals
    - 6. friction/pressure plates
    - 7. types
      - a. sprag
      - b. roller
  - V. Diagnosis and Repair of Steering Systems
    - A. Manual Steering Gear
      - 1. inspection
      - 2. diagnosis/repair/replacement
    - B. Power Steering Gear
      - 1. rack and pinion
      - 2. non-rack and pinion
      - 3. inspection
      - 4. diagnosis/repair/replacement