

DESL 1043 : Diesel Transmissions

3 credit hours (2 lecture/2 lab)

This course introduces the necessary knowledge required to be able to identify, service, troubleshoot, remove, disassemble, inspect, reassemble and install manual, automated and automatic transmissions. Lubrication, clutch operation and adjustment, transmission and clutch failure analysis, air and electric systems, and parts evaluation are included. The course is a mixture of textbook, videos, lecture, hands-on exercises and on-site instruction at a local diesel repair facility.

Topical Outline

- Power flow of Manual transmissions
- Diagnosis and service of manual transmissions
- Specialty tools needed and used
- Power dividers
- Shift controls
- Drive Axle hubs, bearings, studs, and seals
- Under/over drive systems and controls
- Clutch operation and replacement
- Clutch adjustment
- Clutch brake operation and adjustment
- U-joint and driveshaft repair and replacement

Course Outcomes

At the end of this course, students will be able to:

1. Demonstrate proper shop safety practices while repairing transmissions and drivetrains.
2. Identify tools, equipment, and pullers used in the repair of manual drive trains.
3. Identify and describe the function of manual drive train parts and components.
4. Diagnose shifting related concerns.
5. Disassemble, inspect, determine needed action, and reassemble manual transmissions.
6. Diagnose, repair, or replace air shift controls.
7. Inspect power divider assembly, determine needed action.
8. Demonstrate power flow of a manual transmission.
9. Diagnosis, service, replace, and adjust a double clutch system.
10. Diagnose slipping, incorrect shifting, and abnormal noise caused by the clutch system.
11. Inspect flywheel and bell housing alignment.
12. Inspect, service, and replace universal joints, yokes, and shafts.
13. Replace drive axle bearings, hubs, axle shafts, seals, and wheel studs.