MTRK 163: MEDIUM AND HEAVY TRUCK DRIVETRAIN SERVICE, DIAGNOSIS, AND REPAIR

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2022
Credits:	7
Total Contact Hours:	198
Lecture Hours :	90
Lab Hours:	108
Hours Arranged:	0
Outside of Class Hours:	180
Prerequisite:	MTRK 156B or AUTO 166 or by department consent based upon individual's experience and ASE certifications or manufacturer certifications.
Strongly Recommended:	MATH 144.
Transferable to CSU:	Yes
Transferable to UC:	No
Grading Method:	Standard Letter, Pass/No Pass

Catalog Course Description

Intended for those seeking a career in the medium and heavy truck service and repair industry. This course focuses on the service, diagnosis and repair of the manual and automatic automotive drivetrain systems. Appropriate lab activities in medium/heavy truck drivetrain inspection, service and repair are included. The course prepares students for the ASE Drivetrain(T3) certification exams. 90 lecture hours, 108 lab hours.

Course Objectives

- complete ninety-five percent (95%) of Priority 1 (P-1), seventy percent (70%) of Priority 2 (P-2) twenty-five percent (25%) of the Priority 3 (P-3) required National Automotive Technician Education Foundation (NATEF) objectives for Drive Train(T3). Please see attached NATEF objectives (pages 46-50) or www.natef.org for the most current objectives.
- inspect fluid level, fluid condition and maintenance intervals of axles, manual and automatic transmissions.
- use industry safety practices to safely remove large driveline items.
- perform diagnostic procedures on automatic transmissions with shifting concerns.
- overhaul heavy duty truck transmissions.
- overhaul heavy duty truck axles.
- remove and replace driveshafts and u-joints.

Major Course Content

1. Safety Specific to the Drivetrain System
2. Fasteners, Gaskets and Seals Specific to the Manual Drivetrain System.
3. Gear theory and torque multiplication.
4. Theory of operation of various manual transmissions and related drivetrain components including: clutches, manual transmission, drive axles and shafts and differential assemblies.
5. Proper removal and installation procedures for manual transmissions and drive axles.
6. Proper use of special service tools and equipment
7. Diagnostic strategies for accurate and timely diagnosis and repair of failed components.
8. Service of drivetrain components
    a. Manual clutch service
    b. Flywheel machining
    c. Manual transmission service
    d. Differential service
9. Diagnosis of drivetrain components
    a. In car diagnosis
    b. Out of car diagnosis
    c. Air shift system diagnosis
    d. Power train diagnosis
10. Rebuilding of drivetrain components
    a. Disassembly procedures
    b. Cleaning methods
    c. Inspection of parts
    d. Reassembly procedures
    e. Bench testing and inspection

Lab Content

1. Service of drivetrain components
    a. Manual clutch service
    b. Flywheel machining
    c. Manual transmission service
    d. Differential service
2. Diagnosis of drivetrain components
    a. In car diagnosis
    b. Out of car diagnosis
    c. Air shift system diagnosis
    d. Power train diagnosis
3. Rebuilding of drivetrain components
    a. Disassembly procedures
    b. Cleaning methods
    c. Inspection of parts
    d. Reassembly procedures
    e. Bench testing and inspection

Suggested Reading Other Than Required Textbook

Students will read selected diesel trade journals.

Examples of Required Writing Assignments

Students will write a brief summary of trade journal or periodical articles.
Students are required to use APA format.

Examples of Outside Assignments

Students will write a brief summary of trade journals or periodicals.
172_1_Clutch_Removal_Student

Instruction Type(s)

Lecture, Lab, Online Education Lecture