

# Automotive Drive Trains & Axles

A study of automotive clutches, clutch operation devices, manual transmissions/transaxles, and differentials. Emphasis on diagnosis and repair of transmission/transaxle and driveline components. May be taught manufacturer-specific.

## **Course Length**

16, 8, and 5 week term offerings

## **Format for Delivery**

F-2-F, Hybrid, and Online

## **Course Learning Objectives**

Students successfully completing this course will utilize appropriate safety procedures; diagnose and repair drive train components, clutches, manual transmissions/transaxles, and differentials; and service constant velocity joints and universal joints.

Utilizing appropriate safety procedures, the student will demonstrate:

- 1) Familiarity with late-model manual transmissions
- 2) Safe, professional, and responsible work practices.
- 3) The ability to identify and demonstrate the proper use of shop equipment and tools.
- 4) The ability to describe functions of manual transmissions, clutches, and driveline components.
- 5) The use of service publications in the proper service of automotive transmissions.

## **Required Textbooks**

Today's Technician: Basic Automotive Service and Systems, Classroom Manual and Shop Manual 6<sup>th</sup> edition

By Chris Hadfield, John Witthauer

E-book included with Cengage Unlimited subscription, required for all AUMT courses.

**SUPPLIES AND EQUIPMENT:** Tool list to be provided by the instructor.

**COPYRIGHT POLICY:** Unless a student has obtained permission from the copyright holder, it is a violation of Copyright Law to print or photocopy chapters from a textbook that the student did not purchase. If the course requires the use of an electronic textbook, a student must look for a statement that allows for photocopying and/or printing of the eTextbook.

## **Evaluation Standards**

Periodic tests, both objective and skill-based, allow the student to demonstrate their level of achievement in each competency.

Student success is measured by assessment techniques aligned to course goals and learning outcomes. A variety of techniques may be used, including but not limited to objective exams, written reports, performance charts, portfolios, oral presentations or demonstrations, and group projects. Individual faculty members are responsible for designing evaluation instruments to measure student mastery of course goals and learning outcomes and for indicating the nature of such instruments in the instructor's class requirements.

## **GRADING REQUIREMENTS:**

30% Labsheet assignment completion

25% Skills test including final skills test

20% Written tests, including a final exam

10% Quizzes, including pop quizzes

5% Assignments, including e-learning modules, review questions, etc.

5% Participation in class and lab (affected by absences)

5% Properly following safety procedures and proper clean up of lab area

**Written Tests:** Acceptable written evaluations shall be completed with a minimum score of; 80% or higher. Safety-related written tests may require a higher score for mastery, and curriculum-specified best practices will be followed.

**Performance Evaluations:** Acceptable and safe completion of performance evaluations will be determined by the instructor according to accepted industry standards and the specified criteria. Performance evaluations meeting minimum industry standards will earn a grade of 70% (C or Satisfactory). Those exceeding "minimum" acceptance standards may earn higher grades subject to the instructors' approval. Students not meeting minimum acceptance standards must repeat each unacceptable performance evaluation until minimum skills are achieved. Students unable to meet minimum acceptance standards may be assigned an "F" grade for any incomplete competencies. However, all specified competencies **MUST** be completed to receive credit for this course, and any incomplete competencies may result in an "F" in the course.

**Supplemental evaluations** may include safe practices, student participation, quizzes, time management, workplace skills, and other instructor-specified content.

### **Drop Date**

If you intend to withdraw from the course or resign from the college, you must initiate the action by logging into Coyote Connect. The instructor will not withdraw you automatically.

### **Absences**

**ATTENDANCE POLICY:** It is the student's responsibility to maintain regular contact with instructors. Class attendance is the responsibility of the student. All students must be officially enrolled in any course that they attend. It is expected that students attend all classes and be on time. If an absence occurs, it is the responsibility of the student to make up examinations, obtain lecture notes, and otherwise compensate for what may have been missed. Students who stop attending class and do not officially drop, withdraw, or resign from the college may receive a grade of "F" for all coursework missed. Absences affect performance in this course and do not reflect well on participation. No student may substitute the attendance of another student.

Students should frequently check Canvas (Learning Management System) for notifications and updates to the course. Students are expected to use the online resources provided by WC to:

1. Track course assignments and progress
2. Discuss topics and issues with fellow students
3. Turn in assignments, quizzes, and tests
4. Check for any updates, changes or alterations to the course
5. Access all course materials to include presentations, assignments, quizzes, and tests.

### **Instructional Methods**

Lecture, demonstrations, lab exercises.

### **Disabilities**

#### **ADA Statement:**

Any student with a documented disability (e.g. learning, psychiatric, vision, hearing, etc.) may contact the Office on the Weatherford College Weatherford Campus to request reasonable accommodations. *Phone:* 817-598-6350 *Office Location:* Office Number 118 in the Student Services Building, upper floor. *Physical Address:* Weatherford College 225 College Park Drive Weatherford, TX.

**Academic Integrity**

Academic Integrity is fundamental to the educational mission of Weatherford College, and the College expects its students to maintain high standards of personal and scholarly conduct. Academic dishonesty of any kind will not be tolerated. Academic dishonesty includes, but is not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials including unauthorized use of Generative AI. Departments may adopt discipline specific guidelines on Generative AI usage approved by the instructional dean. Any student who is demonstrated to have engaged in any of these activities will be subject to immediate disciplinary action in accordance with institutional procedures.

**Program Learning Outcomes**

Upon completion of the program, graduates will be able to:

- Perform tasks to diagnose and repair components of electrical/electronic systems, and heating, ventilation and air conditioning systems.
- Perform tasks to diagnose and repair automotive engine and power train systems.
- Perform tasks to diagnose and repair components of automotive suspension and steering systems.
- Perform tasks to diagnose and repair components of hydraulic and anti-lock brake systems.