



Course Outline

2026-2027 Catalog

AUT 20 - Automotive Brakes/Suspension and Steering Systems Lecture

Catalog Description

Transfer Status: CSU

Prerequisite: AUT 3 (or concurrent enrollment)

Unit(s): 3.00

Lecture: 51.00 Contact hours/102.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

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Course Description: This course introduces the theory, operation, diagnosis and repair in the areas of base brake systems, anti-lock brake systems, and steering and suspension systems. Topics include: the application of Pascal's Law, disk and drum brake systems and their related components, drum brake systems, anti-lock brake system operation, diagnosis and repair, suspension system operation, diagnosis and repair including electronic suspension and steering systems.

Objectives

Upon successful completion of this course, the student should be able to:

1. Describe the process used to diagnose and repair disk brake systems.
2. Describe the process used to diagnose and repair drum brake systems.
3. Describe the process used to diagnose and repair anti-lock brake systems.
4. Describe the process used to diagnose and repair suspension systems.
5. Describe the process used to diagnose and repair steering systems.
6. Describe the process used to diagnose and repair electronic suspension/steering systems.

Course Content

Topic Titles / Suggested Time Topic	
<u>Lecture</u>	
<u>Topics</u>	<u>Lec Hrs</u>
Brake operation, diagnosis and repair.	5.00
Steering, suspension systems, diagnosis and repair.	5.00
Hydraulics as they relate to master and secondary cylinders, including piping, fittings and brake assist systems.	5.00
Disc, drum and parking type braking systems.	5.00
Electronic brake systems including anti-lock brakes, traction controls, stability assist, brake mitigation systems, diagnosis and repair.	6.00
Tires, wheels, wheel bearings, diagnosis and repair.	5.00
Shock absorbers and strut dampening systems.	2.00
Short-Long Arm (SLA), multi-link and MacPherson strut type suspension systems; industry recognized diagnosis and repair procedures.	5.00
Four-wheel alignment and diagnostic alignment angles.	8.00
Computer controlled suspension systems, rack and pinion steering gears and four-wheel steering systems; industry recognized diagnosis and repair procedure.	5.00
Total Hours: 51.00	

Methods of Instruction

- A. Demonstrations
- B. Discussion
- C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- D. Lecture
- E. Multimedia Presentations
- F. Reading Assignments

Methods of Evaluation

- A. Exams/Tests
- B. Quizzes
- C. Demonstration
- D. Homework
- E. Class participation

Examples of Assignments

Reading Assignments

1. Read industry recognized procedures on proper alignment practices and be prepared to discuss in class.
2. Read the assigned chapters on disc and drum brakes then complete the related test.

Writing Assignments

1. Complete the reading assignment on alignment procedures and write a 1-page summary.
2. Following the lecture and discussion on steering gears, fill in the steering section of the key notes book.

Out-of-Class Assignments

1. Read chapter 17 and complete the end of chapter quizzes.
2. Complete the Mechanical Safety portion of the SP2 safety test with a score of 80% or better. Prior to working in lab, you must complete the following areas: Introduction, Fires, Slips & Falls, Power Tools, Lifts, Operating Vehicles, Jump Starting, Chemicals and the SDS.

Recommended Materials of Instruction

Pickerill, K. & Godson, M. (2025). Today's Technician: Automotive Brake Systems, Classroom and Shop Manual. *Cengage, 8th*. 9780357766125.

Schnubel, M. & Knowles, D. (2025). Today's Technician: Automotive Suspension & Steering Systems, Classroom Manual and Shop Manual. *Cengage, 8th*. 9780357935323.

Minimum Qualifications

Automotive Technology

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