

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: AUT 151 **Credits:** 5

Course Title: Automotive Braking Systems Diagnostics

Course Description

Introduces basic and advanced automotive braking system concepts, including theory and practical application. Provides instruction on Antilock Braking Systems, base brake systems, and Virginia State Inspection practices. Covers basic mechanical brake systems, hydraulics, precision measuring instruments, and how to use diagnostic test equipment. Provides preparation for the Automotive Service Excellence (ASE) A5 Brakes Certification examination. Lecture 2 hours. Laboratory 6 hours. Total 8 hours per week. 5 credits

General Course Purpose

The purpose of the course is to introduce basic and advanced automotive braking system concepts, including theory and practical application. It provides instruction on Antilock Braking Systems, base brake systems, and Virginia State Inspection practices. Covers basic mechanical brake systems, hydraulics, precision measuring instruments, and how to use diagnostic test equipment. The course also prepares students for the Automotive Service Excellence (ASE) A5 Brakes Certification examination.

Course Prerequisites/Corequisites

Prerequisite: AUT 149.

Course Objectives

- define basic braking principles.
- demonstrate the ability to properly use diagnostic test equipment.
- perform on-vehicle testing of electronic and mechanical components.
- determine the cause of poor stopping, pulling, or dragging concerns and restore the system to industry standards.
- diagnose and repair hydraulic braking concerns.
- evaluate the proper operation of sensors and control modules using appropriate test equipment and service manuals.
- prepare for the Virginia State Inspection license exam.

Major Topics to be Included

- Braking System Components
- Braking System Principles
- Brake Hydraulic Systems
- Hydraulic Valves and Switches
- Brake Fluid and Lines
- Wheel Bearings and Service
- Drum Brake Diagnosis and Service
- Disc Brake Diagnosis and Service
- Parking Brakes

- Power Brakes
- ABS Components and Operation
- ABS Diagnosis and Service
- Electronic Stability Control
- Virginia State Inspection

Effective Date/Updated: May 1, 2015