



MASTER COURSE OUTLINE

Prepared By: John Martin

Date: January 2016

COURSE TITLE

Brake System Service

GENERAL COURSE INFORMATION

Dept.: AUT

Course Num: 124

(Formerly:)

CIP Code: 47.0604

Intent Code: 21

Program Code: 712

Credits: 15

Total Contact Hrs Per Qtr.: 132

Lecture Hrs: 66

Lab Hrs: 66

Other Hrs:

Distribution Designation:

COURSE DESCRIPTION (as it will appear in the catalog)

This course covers the theory, operation, diagnosis and repair of both conventional and anti-lock brake systems. Topics covered are hydraulic operating systems, drum brake systems, disc brake systems, emergency/parking brake systems and brake machining operations. This course is designed to prepare the student for the ASE/NATEF Brakes Certification test.

PREREQUISITES

AUT 115 Automotive Shop Safety and Environmental Issues

TEXTBOOK GUIDELINES

An automotive chassis text as chosen by Automotive Faculty (Example: *Automotive Chassis Systems - Halderman*)

COURSE LEARNING OUTCOMES

Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills:

1. Safely perform brake system service and repair.
2. Use and interpret automotive service manuals.
3. Perform diagnosis, service and repair on various types of automotive master cylinder systems.
4. Perform diagnosis, service and repair on various types of automotive hydraulic components.
5. Perform diagnosis, service and repair on various types of automotive drum brake systems.
6. Perform diagnosis, service and repair on various types of automotive disc brake systems.
7. Perform diagnosis, service and repair on various types of automotive parking brake systems.
8. Perform machining operations on both brake drums and disc brake rotors.
9. Perform diagnosis, service and repair on various types of automotive power brake assist systems.
10. Perform diagnosis, service and repair on various types of automotive antilock brake systems.
11. Pass the Automotive Service Excellence (ASE) Test for Automotive Brakes System Specialist.

INSTITUTIONAL OUTCOMES

COURSE CONTENT OUTLINE

General System Introduction and Safety

Vehicle Construction, Fasteners and Safety

Basic Brake System Operation

Braking System Principles, Components and Operation

Master Cylinder and Hydraulic System Service

Master Cylinders & Hydraulic System Diagnosis & Service

Drum Brake Systems

Drum Brake Operation, Diagnosis and Service

Disc Brake Systems

Disc Brake Operation, Diagnosis and Service

Parking Brake Systems

Parking Brake Operation, Diagnosis and Service

Brake Machining

Machining Brake Drums and Rotors

Power Brake Systems

Power Brake Unit Operation, Diagnosis and Service

Antilock Brake Systems

ABS Components and Operation

ABS Diagnosis and Service

DEPARTMENTAL GUIDELINES *(optional)*

EVALUATION METHODS/GRADING PROCEDURES:

- Daily work assignments: 30% of the final grade.
- Test and quiz scores: 30% of the final grade.
- Laboratory performance: 40% of the final grade.

In the Laboratory, the student is required to complete daily time sheets explaining what was accomplished during each lab period. Points will be earned for each day's performance. While in the laboratory, the student is also required to maintain a Laboratory Task List. The task list must be signed off by the instructor as the student completes each task.

No points are earned if absent. All late work will have 10% deducted. Ten (10) or more absences will result in failure of the class.

Points will be lost for:

- Tardiness
- Poor quality work
- Poor work habits
- Improper use of tools
- Unsafe work habits
- Improper care of tools

Grades will be calculated using the following numerical scale:

95-100 =	4.0	82 =	2.8	70 =	1.6
93-94 =	3.9	81 =	2.7	69 =	1.5
92 =	3.8	80 =	2.6	68 =	1.4
91 =	3.7	79 =	2.5	67 =	1.3
90 =	3.6	78 =	2.4	66 =	1.2

89	=	3.5	77	=	2.3	65	=	1.1
88	=	3.4	76	=	2.2	64	=	1.0
87	=	3.3	75	=	2.1	63	=	0.9
86	=	3.2	74	=	2.0	62	=	0.8
85	=	3.1	73	=	1.9	61	=	0.7
84	=	3.0	72	=	1.8	60	=	0.7
83	=	2.9	71	=	1.7	0-59	=	0.0

DIVISION CHAIR APPROVAL

DATE