

Imperial Valley College
Spring 2013

Automotive Brakes
AUT 125

Instructor: José López

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Class begins: January 14, 2013

Ends: May 10, 2013

Time: M 1:00-4:10 pm
T-Th 10:30-11:55a.m.

TEXTBOOK

Modern Automotive Technology Book & Workbook
Author: James E. Duffy

Course Description

This course covers the principles of instruction in disassembly, inspection, installation and adjustments of the modern brake system. Laboratory activities stress brake system diagnosis, repair, machining, and overhaul procedures and proper use of tools and equipment utilized in the industry. Upon successful completion of this course, students are prepared to take the automotive service excellence (ASE) certification examination in brakes.

Student Learning Outcomes:

IVC as an institution has adopted five student learning outcomes (SLO'S). They are interconnected with each other. They will be inherent throughout this course:

1. Communication
2. Skills
3. Critical thinking Skills
4. Information Literacy
5. Global Awareness

Course Goals and Objectives

Upon successful completion of this course, students will be able to:

- A. Comply with all safety shop procedures associated with stands, air tools, hydraulic jacks, and car lifts.
- B. Have a thorough understanding of the brake system and its components
- C. Describe power brake systems and anti-lock operation
- D. Describe the proper steps and procedures of disc brake and drum brake overhaul.

Students with disabilities

Any student with a documented disability who may need educational accommodations should notify his/her instructor or the Disabled Student Program and Services (DSSPS) office as soon as possible.

The 9DSPS) is located in building 2117, Health Services Building, or may contact them at 760-355-6312. For first aid call the nurse at 760-337-0300.

Student Responsibilities

Each student is required to comply with the schedule established by IVC and the automotive program. Students should attend class each a day class is in session. If for any reason a student is absent she/he is responsible for making up any missed work. It is recommended that students call the office to inform the instructor is she/he is ill or bring a doctors release note. Four tardies =one absence, four absences and you will be dropped from the class or given an incomplete (IC) for the course. It is also recommended for each student to bring classroom and shop manual along with pencil and paper.

Basic Rules and Shop Safety

1. No music allowed in the auto shop.
2. No smoking in the shop area.
3. No work should be redone without the instructor's permission.
4. No parking inside the shop during lecture time.
5. No tolerance for sexual harassment.
6. No long breaks (10 minutes per class hour).
7. Every student is required to wear safety glasses.
8. No helpers or visitors during lab activities.
9. The student cannot leave early without the instructor's permission.
10. No cell phones during class section.
11. Each student should clean the work area.

Spring Class Schedule 2013

- Classes begin: Jan 14
- Late Registration: Jan 14-Jan 26
- Deadline to drop full-term classes: Apr 13
- Holiday Martin Luther King: Jan 21
- Ticketing for Parking violations: Jan 28
- Holiday Lincolns Birthday: Feb 8 & 9
- Holiday Presidents Day: Feb 18
- Holiday Easter: Mar 31
- Holiday Spring Break: Apr 1-6
- Last week of classes and final exams: May 6-10

Assignments and activities consist of:

- Reviews
- Videos
- Laboratory Activities
- Service manuals
- Hands-on each section

Grading System

There will be a mid-term and a final exam. Each will be worth 25% of your grade. Quizzes will make-up 25% of your grade. The last 25% of your grade will be on projects assigned as part of the lab section of the class.

<u>Percentage</u>	<u>Scores</u>	<u>Letter Grade</u>
25% Completed Assignments	90-100%	A
25% Quizzes	80-90%	B
25% Mid-Term	70-79%	C
25% Final Exam	60-69%	D
	50-59%	F

NOTE : LECTURE ON CHAPTERS WILL BE SUBJECT TO CHANGES

WEEKS	INTRODUCTION MANUAL	CLASS ACTIVITIES	QUIZ	HOMEWORK/ EXAMS
1	Orientation: <ul style="list-style-type: none"> - Safety - Types of brake systems - Safety and Brake fundamentals - Principles of braking and Drum/disk brakes - Parking, hydraulic, power brake boosters - Anti-lock braking system, Brake service and repair. 	Show safety Videos	Safety Exam	Video Safety Test
Part II	Chapter 1-Automotive Safety <ul style="list-style-type: none"> - Right to know laws - Disposal of Automotive Waste - Fire Prevention/Ventilation - Jacks and Lifts and Lift property 	Page 9,10,11,12. Use Study Guide Worksheets and review with the class		Class book review questions page 20 (Homework)
2 nd Week	Chapter 3- Automotive Tools <ul style="list-style-type: none"> - Wrenches, Sockets/Tatchets, Pliers - Screwdrivers, Impacts, Cleaning Equipment - Special tools and more 	Use study worksheet and review with the class Pages 19-24	Quiz #1	Class book review questions Pages 44-45 (Homework)
3 rd Week	Chapter 46 Automotive Brakes <ul style="list-style-type: none"> - Fundamentals of Brake System - Braking System Operation - Brake Lining Materials - Disc/Drum Brakes 			

	<ul style="list-style-type: none"> - Brake Hydraulic System - Disc Brake Calipers 			
Part II	<ul style="list-style-type: none"> - Wheel Cylinders - Brake lines, Hoses, and fittings - Power Brake - Antil-lock Brake System 			
4 th Week	Brake Service <ul style="list-style-type: none"> - Hydraulic System Service - Disc Brake Service - Drum Brake Service - Power Brake System Service - Troubleshooting and Servicing anti-lock brake systems 	Study Guide Worksheet Pages 251-254	Quiz #2 on brake chapter	Review questions page 684 (Homework)
5 th Week	Measuring Instruments <ul style="list-style-type: none"> - Micrometers - Telescoping Gauges and small hole gauges - Vernier Calipers - Feeler Gauge 	Study Guide Worksheet pages 33-36	Quiz #3	Review questions on page 63 (Homework)
6 th Week	Fasteners, Seals and Gaskets <ul style="list-style-type: none"> - Fasteners, threaded fasteners - Key and pins, snap rings, rivets - Adhesives, sealants, seals gaskets 	Study Guide worksheets Pages 25-31	Quiz on Fasteners	Review questions Page 58 (Homework)
7 th Week	Hydraulic and Pneumatics <ul style="list-style-type: none"> - Hydraulic operation - Hydraulic forces - Movement of liquid - Pneumatics 	Study Guide worksheets Pages 243-245		
8 th Week	<ul style="list-style-type: none"> - Effect of atmospheric Pressure - Effect of Vacuum - Compressed Air - Principal of the Siphon - Venturi tube - Boyle's Law - Charles Law 	Study Guide Worksheets pages 246-247	Mid term exam	Review questions page s 645-646 (Homework)
9 th Week	Tires and Tire Service <ul style="list-style-type: none"> - Tire types and basic structure - Tread patterns - Tire Markins - Tire Service - Improvement and advance 	Study Guide Worksheets pages 231-237	Quiz #4	
10 th Week	Computer System Fundamentals <ul style="list-style-type: none"> - Computer control system - Components of a compture - Sensors - Electronic control module 	Study Guide worksheets Page 157-158		Review questions page 3958 (Homework)