

Imperial Valley College
Spring 2013

Automotive Techniques and Applications
AUT 070
3.0 Units
18 Lecture 108 Lab

Instructor: José López

Office: 1102

E-mail: jose.lopez@imperial.edu

Telephone: 760-355-6361

Class begins: January 14, 2013

Ends: May 10, 2013

Time: S 8:00-9:00 am
S 9:30a.m.-3:50p.m.

TEXTBOOK

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

Course Description

This course is designed for students that already completed classes in brakes, suspension, wheel alignment, and basic automotive electronics or students who are currently employed in the automotive field. This course consists of review of hands-on using worksheets related to diagnose brake repair, steering/suspension repair and our wheel alignment. In addition, the student will be using the latest diagnostic equipment and service techniques of the automotive field. May be taken for a maximum of 6 units. (Non-transferable non-degree applicable)

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

Spring Class Schedule 2013

- Classes begin: Jan 14
- Late Registration: Jan 14-Jan 26
- Deadline to drop full-term classes: Jan 28
- 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 |

**IMPERIAL VALLEY COLLEGE
INDUSTRIAL TECHNOLOGY DEPARTMENT**

Automotive Techniques and Applications
AUT 070

The following Worksheets are required in order to successfully pass this course. If you have not yet completed or do not have your worksheets please let your instructor know before finals week.

| No | Worksheets | Completed | Incomplete | Instructor Initials | Student Initials | Date |
|----|---------------------------------------|-----------|------------|---------------------|------------------|------|
| 1 | Wheel and tire Run out | | | | | |
| 2 | Types of Tires | | | | | |
| 3 | Tire Rotation | | | | | |
| 4 | Tire Changing | | | | | |
| 5 | Off the Vehicle Wheel Dynamic Balance | | | | | |
| 6 | Wheel Bearings | | | | | |
| 7 | Front Wheel Bearing Replacement | | | | | |
| 8 | V-Joint Inspection /Replacement | | | | | |
| 9 | U-Joint Boot Replacement | | | | | |
| 10 | Dry Park Test (steering) | | | | | |
| 11 | CV Joint Boot Replacement | | | | | |
| 12 | Dry Park Test (steering) | | | | | |
| 13 | Steering Component ID | | | | | |
| 14 | Pre-Alignment Inspection | | | | | |
| 15 | Rack and Pinion R&R | | | | | |
| 16 | Tie-Rod end replacement | | | | | |
| 17 | Idle Arm Replacement | | | | | |
| 18 | Accessory Drive Belt Inspection | | | | | |

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Automotive Technology Program
AUT 070 Automotive Techniques and Applications

The following Worksheets are required in order to successfully pass this course. If you have not yet completed or do not have your worksheets please let your instructor know.

| No | Worksheets | Completed | Incomplete | Instructor Initials | Student Initials | Date |
|-----------|---|------------------|-------------------|----------------------------|-------------------------|-------------|
| 1 | Wheel and tire Run out | | | | | |
| 2 | Brake pedal Height | | | | | |
| 3 | Identify / Interpret | | | | | |
| 4 | Bench Bleeding the Master cylinder | | | | | |
| 5 | Brake Hose and Line Inspection | | | | | |
| 6 | Manual Brake Bleeding | | | | | |
| 7 | Pressure Brake Bleeding | | | | | |
| 8 | Vacuum Brake Bleeding | | | | | |
| 9 | Gravity Brake Bleeding | | | | | |
| 10 | Drum Brake Problem Diagnosis | | | | | |
| 11 | Brake Drum Measurement | | | | | |
| 12 | Machining a Brake Drum | | | | | |
| 13 | Drum Brake Inspection | | | | | |
| 14 | Wheel Cylinder Inspection and Replacement | | | | | |
| 15 | Pre-Adjustment of Brake Shoes | | | | | |
| 16 | Disc Brake Caliper Assembly | | | | | |
| 17 | Disc Brake Caliper Overhaul | | | | | |
| 18 | Brake Rotor | | | | | |

Automotive Techniques and Applications 070
Bench Worksheets and vehicle worksheets

| Bench Worksheets | Material Needed | Vehicle Worksheets |
|---|------------------------------|--|
| Activity I | Activity I | Activity I |
| AC and DC voltage current flow measurements. | Blue elect box | AC and DC voltage measurements |
| Resistor color code box | Multimeter testers | Divide Tests |
| Types of resistors measurements | Different types of resistors | DC current flow |
| Resistor circuits for: series parallel, and series parallel | On/Off switch | Ignition system test |
| Using Ohm's law to calculate and prove values of series, parallel | Circuit boards | Lamp circuit measurement |
| Multimeter interpretation | Jumper wires | Alternator and starter flow |
| Continuity and conductivity | Meter clamp 60A | Voltage Source |
| Lamp Circuit and Activity measurements | Battery load tester | Alternator voltage drop across the B+ side |
| Voltage drop across + and negative side | Battery temp gauge | Alternator across B-side |
| Voltage drop of load side | Test light | Voltage drop across the Alternator (load) |
| | | Battery voltage level |
| | | Cranking current flow |
| | | Battery bounce-back test |