

De Anza College  
AUTOMOTIVE TECHNOLOGY 53B  
Automotive Electromechanical Systems 2 Units  
Green Sheet

Winter 2015

|                    |                                                                               |
|--------------------|-------------------------------------------------------------------------------|
| <b>Section #</b>   | <b>30343</b> 12:30pm-2:20pm TTH                                               |
| Instructor:        | Michael McCart                                                                |
| Office Phone #     | 408-864-8376 (during office hours)                                            |
| E-mail             | mccartmichael@deanza.edu (best way to communicate)                            |
| Class meetings:    | Jan. 5 – Mar. 27                                                              |
| Classroom:         | G8                                                                            |
| Office hours       | Instructor's office hours will be 5-6 PM, MTWTh in office E14A.               |
| Automotive website | <a href="http://www.deanza.edu/autotech/">http://www.deanza.edu/autotech/</a> |

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.

Four hours lecture-laboratory per week (equal to forty-eight hours lecture per quarter).

|                   |                                                                                        |
|-------------------|----------------------------------------------------------------------------------------|
| <b>Final Exam</b> | Tuesday, March 24, 11:30-1:30pm<br><b><u>Time change to 12:30 in the Auto Shop</u></b> |
|-------------------|----------------------------------------------------------------------------------------|

### Student Learning Outcomes

Demonstrate the ability to diagram and construct simple electromechanical circuits, calculating and measuring voltage, amperage, and resistance using Ohm's Law and a digital multimeter.

Develop a testing sequence to diagnose open, shorted, and grounded electromechanical circuits.

### Disruptive Behavior

- A. De Anza College will enforce all policies and procedures set forth in the *Standards of Student Conduct* (see catalog). Any student disrupting a class may be asked to leave that class. After administrative review, the instructor may drop the student from the class.
- B. **Repeated cell phone interruptions will not be tolerated. Turn cell phones off during class and keep them in your backpacks.**
- C. There will be no eating, drinks, or chewing tobacco or gum in this classroom.
- D. Smoking in designated areas only.

### Attendance

**Students will be dropped** after two or more absences.

### **IMPORTANT NOTICE**

**NONE OF THE EXAMINATIONS OR THE LABORATORY EVALUATIONS MAY BE MADE UP UNLESS PRIOR AUTHORIZATION IS ARRANGED WITH THE INSTRUCTOR. OTHER LAIEWORK WILL BE LOWERED EVERY CLASS IT IS LATE ONE WHOLE GRADE.**

## Auto 53B

We will cover electrical theories, testing and measuring procedures, circuit construction and schematic interpretation. Students will apply the principles of magnetism in automotive applications. Understand the operation of semiconductors in electronic devices and controls.

### Required equipment

- A. Textbook: Halderman, James D. Diagnosis and Troubleshooting of Automotive Electrical, Electronic, and Computer Systems. 6<sup>th</sup> ed. Englewood cliffs, N.J. Prentice Hall Inc., 2001
- B. Scientific calculator (not your cell phone)
- C. **Safety glasses for classroom lab demonstrations and at all times when in the shops**
- D. Notebook and pencil

### Course Objectives

- A. Electrical safety
- B. Comprehend simple electrical circuits and ohm's law
- C. Use analogical reasoning to solve series, parallel and series-parallel circuits
- D. Operate circuit testers and digital meters
- E. Evaluate wires, connectors and wiring schematics
- F. Critique battery testing methods
- G. Recognize starting and charging systems components
- H. Appraise alternators and starters functionality
- I. Assess lights, blower motor, horn, and accessory circuits
- J. Identify on-board diagnostic and computer control

### Methods of Evaluating Objectives

- A. Accuracy of data
- B. Completeness of assignment
- C. Number of correct answers on multiple choice quizzes and tests

### Required reading prior to class

- Week 1 Chapter 1
- Week 2 Chapters 4 and 5
- Week 3 Chapters 6 and 7
- Week 4 Chapters 15 and 16
- Week 5 Chapters 17, 18, 19 and 20
- Week 7 Chapters 8 and 9
- Week 9 Chapters 21, 23 and 24
- Week 10 Chapters 13 and 27

### Classroom worksheets

- Week 1 1 Math review
- Week 2 2 Series parallel circuits
- Week 3 3 Ohm's Law
- Week 4 4 DVOM and LED
- Week 9 6 Circuit tracing

**Lab activities**

|         |                        |
|---------|------------------------|
| Week 5  | A Vantage              |
| Week 7  | B Circuit testing DVOM |
| Week 7  | C Batteries            |
| Week 7  | D Charging system      |
| Week 7  | E Starters             |
| Week 8  | F Connector and wiring |
| Week 10 | G Computer & Diagnosis |

**Quizzes are on Thursdays**

|        |                         |
|--------|-------------------------|
| Week 1 | Math review (first day) |
| Week 2 | Safety test             |
| Week 3 | Chapters 4, 5, 6 and 7  |
| Week 8 | Chapters 8, 9           |

**Tests**

|         |         |
|---------|---------|
| Week 6  | Midterm |
| Week 12 | Final   |

**Grading**

|              |                |            |
|--------------|----------------|------------|
| Safety test  |                | 30         |
| Quizzes 2    | 2 at 70 points | 140        |
| Worksheets   | 6 at 15 points | 90         |
| Activities   | 7 at 15 points | 105        |
| Midterm      |                | 100        |
| Performance  |                | 10         |
| Final        |                | 125        |
| <b>Total</b> |                | <b>600</b> |

**Grade definitions are as follows:**

## Evaluative Symbols, Percentages and Grade Points

| Points    | Letter grade                       | Percentage | Grade points |
|-----------|------------------------------------|------------|--------------|
| 576-600   | A+ Excellent                       | 96-100%    | 4.0          |
| 540-575   | A Excellent                        | 90-95.9%   | 4.0          |
| 520-539   | A- Excellent                       | 86.6-89.9% | 3.7          |
| 500-519   | B+ Good                            | 83.3-86.5% | 3.3          |
| 480-499   | B Good                             | 80-83.2%   | 3.0          |
| 460-479   | B- Good                            | 76.6-79.9% | 2.7          |
| 440-459   | C+ Satisfactory                    | 73.3-76.5% | 2.3          |
| 420-439   | C Satisfactory                     | 70-73.2%   | 2.0          |
| 390-419   | D+ Passing, less than satisfactory | 65-69.9%   | 1.3          |
| 360-389   | D Passing, less than satisfactory  | 60-64.9%   | 1.0          |
| 340-359   | D- Passing, less than satisfactory | 56.6-59.9  | 0.7          |
| Below 339 | F Failing                          | Below 56.6 | 0.0          |

**\*This schedule is subject to change without notice\*** It is intended to be a general guide during the quarter. The schedule and procedures for this course are subject to change at the discretion of the instructor.