

De Anza College
AUTOMOTIVE TECHNOLOGY 60
Automotive Electrical Systems 9 Units
Green Sheet

Winter 2015

Section # 00203 06:00pm-10:15pm MW
Instructor: Michael McCart
Office Phone # 408-864-8376 (during office hours)
E-mail mcartmichael@deanza.edu (best way to communicate)
Class meetings: Jan. 5 – Mar. 25
Classroom: G8
Office hours Instructor's office hours will be 5-6 PM, MTWTh in office E14A/G8.
Automotive website <http://www.deanza.edu/autotech/>

Requisites: Advisories: Automotive Technology 50A and 50B; English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent

Hours: Nine hours lecture per week (equal to one-hundred-eight hours lecture per quarter).

Student learning outcomes

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

Develop a testing sequence to diagnose inoperative charging, cranking, and battery circuits.

Important Dates:

Holidays (*College closed*)

Martin Luther King's Birthday

Monday, January 19

George Washington's Birthday

Monday, February 16

Final Exam

Wednesday, March 25, 6:15-8:15pm

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 LAKEWORK WILL BE LOWERED EVERY CLASS IT IS LATE ONE WHOLE GRADE.

Auto 60

We will cover principles of electricity, electronics, cranking, and charging systems. This course will include testing, diagnosis and repair of these systems. We will answer many questions of how we utilize electricity. First we will define what electricity is then hone our mathematic skills in solving circuits and finally applying our skills to real circuits.

Student requirement

Bring yourself to class with your desire to participate.

Required equipment

- A. Textbook: Halderman, James D. Diagnosis and Troubleshooting of Automotive Electrical, Electronic, and Computer Systems. 6th ed. Englewood cliffs, N.J. Prentice Hall Inc., 2012
- B. Scientific calculator (not your cell phone)
- C. **Safety glasses for classroom lab demonstrations and at all times when in the shops**
- D. 3 ring binder for workbook

Course objectives

- A. Know electrical safety
- B. Comprehends simple electrical circuits and ohm's law
- C. Use analogical reasoning to solve series, parallel and series-parallel circuits
- D. Describe battery construction and diagnosis
- E. Critique battery testing methods
- F. Recognize starting and charging systems components
- G. Analyze Starting and charging system problems
- H. Understand lights, horn, blower motor and accessory circuits
- I. Recognizes on-board diagnostic and computer control

Sections

Safety	Chapter 1 and supplemental material
Circuits and ohm's law	Chapters 4 and 5
Circuit testing and test equipment	Chapters 6 and 7
Electronic fundamentals	Chapter 12
Batteries, starters and alternators	Chapters 15-20
Wiring repair and schematics	Chapters 8 and 9
Lighting, horn, wipers, blower motor and accessory circuits	Chapters 21, 23 and 24
On-board diagnosis	Chapter 13 and 27

Required reading prior to Monday's class

Week 1	Chapter 1
Week 2	Chapters 4 and 5
Week 3	Chapters 6 and 7
Week 4	Chapters 12, 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

Quizzes are on Wednesday

Week 1	Math review (first night)
Week 1	A6 pretest
Week 2	Safety test
Week 3	Chapters 4, 5, 6 and 7
Week 8	Chapters 8, 9

Tests

Week 6	Midterm
Week 12	Final

Worksheets

- 1 Series circuits
- 2 Parallel circuits
- 3 Parallel-series
- 4 Ohm's Law
- 5 Resistor color
- 6 DVOM and LED
- 7 Low amp probe
- 8 Vantage
- 9 Circuit testing DVOM
- 10 Batteries
- 11 Charging system
- 12 Starters
- 13 Circuit tracing
- 14 Connector and wiring
- 15 Computer & Diagnosis

Grading

Math review		5
A6 pretest		10
Safety test		25
Quizzes 2	2 at 50 points	100
Worksheets	15 at 15 points	225
Midterm		105
Performance		10
Final		120
Total		600

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.