IMPERIAL VALLEY COLLEGE

LEARNING FOR SUCCESS

AUTOMOTIVE TECHNOLOGY

AUT-130

AUTOMOTIVE ELECTRONICS 1

COURSE SYLLABUS

INSTRUCTOR:
RICARDO PRADIS

FALL 2014

IMPERIAL VALLEY COLLEGE
Industrial Technology Division
Automotive Department

Course title:	**AUT-130 Automotive Electronics I**
	CRN10815
Instructor:	**Ricardo Pradis**
Telephone:	**(760) 355-6403**
E-mail:	**ricardo.pradis@imperial.edu**
Semester:	**Fall 2014**
Location:	**Room 1100 lecture**
	Room 1102 laboratory
Secretary:	**Frances Gomez (760) 355-6361**
Coordinator:	**Mr. Lopez (760) 355-6362**

Class Meeting:

Monday 8:35 – 10:30 am
Wednesday 8:35 – 11:50 am

All students are to report to class on time defined as class schedule. Any students who arrive 15 minutes after class start time will be marked absent. You are required to report to the instructor if you will be late or must leave early or you will be mark absent for that day.

Course Description:

Advance study of automotive electrical systems. Basic diagnosis and service procedures on the various systems.

Students Learning Outcomes:

1. Identify and interpret electrical/electronic system concern; determine necessary action.
2. Use wiring diagrams during diagnosis of electrical circuit problems.
3. Demonstrate the proper use of a digital multimeter (DMM) during diagnosis of electrical circuit problems, including; source voltage, voltage drop, current flow, and resistance.

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

1. Formulate and apply safe working practices.
2. Explain the fundamentals of construction of automotive Electricity.
3. Describe the functions and construction of the batteries.
4. Understand and analyze electrical problems using electronic equipment.
5. Identify and analyze of starting system circuit.
6. Test and repair starter system components.
7. Understand and interpret wiring diagrams.
8. Identify and test various ignition system.
9. Identify and test light system circuits.
10. Describe and repair indicator lights and gauges.
11. Identify and test various accessories.

Equipment and Supplies:

1. Textbook & Workbook: Modern Automotive Technology 7th Edition James E. Duffy
2. Pen and pencils.
3. Standard writing paper.
4. Personal Protective Equipment:
    - Safety glasses,
    - Work footwear,
    - Proper shirt and pants

Out-of-class assignment:

Obtain information from a flat rate manual and a parts catalog and prepare a repair order for replacement and diagnosis of a fuel pump, starter, and a battery on a vehicle of your choice. Check the information for the amount of labor involved. Then, consult the parts catalog for the cost of the part. Add up the cost plus state tax (figure labor cost at $58/hour)

Reading and Writing:

Using sketches and principles you have learned about basic electricity, prepare a presentation showing how electricity can be created through magnetism.

Grading Criteria:

1. Grading system:
    - A=90%-100% of points= Excellent
    - B=80%-89% of points= Good
    - C*=70%-79% of points= Satisfactory
    - D= 60%-69% of points= Pass, less than satisfactory
    - F= Less than 60% of points= Failing

2. Very important:

- **Mid-Term** (60 points) will be given on October 8. It will be a multiple choice test **Bring your Scantron, and pencil.**
- **Final-Exam** (60 points) will be given on December 10. It will be a multiple choice test **Bring your Scantron and pencil.**
- There are no make-up exams unless you have a very good reason and make arrangements with the instructor before the exam.
- Final grades can be raised or lowered based on your preparation and participation in class. It benefits you to be engage and participative.

Grades:

	Points
Book worksheets, quizzes.	140
Lab activity, hands-on worksheets.	240
Mid-term	60
Final-exam	60
Total points	500

Course Grade:
The course grade is based on total points accumulated during the semester. There is a total of 500 points available. Grades are determined by dividing the total points you earn by the total points available to get your percentage. (Total points may vary if I change the assignments in a particular week).

Grading of Hands-on Assignments:
The most common problem students experience is not being detailed enough in their answers and not spending the right amount of time in the repair procedures. Always be as specific as you can and use examples from your readings. Make sure to answer all parts of the questions. Points will be deducted for inadequate responses. Feedback will be given after each assignment and, hopefully, you will improve as you proceed with the course. The following grading rubric is used when grading assignments.

	Grading Rubric for Hands-on Assignment	Points
A	Focused and clearly organized. Contains critical thinking and content analysis. Convincing evidence is provided to support conclusions. Ideas are clearly communicated. Clearly meets or exceeds assignments requirements.	18-20
B	Generally focused and contain some development of ideas, may be simplistic or repetitive. Evidence is provided which supports conclusions. Meet assignments requirements.	16-17
C	May be somewhat unfocused, underdeveloped, or rumbling. But does have some coherence. Some evidence is provided which support conclusions. Meets minimum assignment	14-15

	requirements.	
D	Unfocused, underdeveloped. Minimal evidence is used to support conclusion. Does not respond appropriately to the assignment.	12-13
F	Minimal effort by the student. Unfocused, underdeveloped. Evidence is not used to support conclusion. Block overall understanding. Does not meet assignment requirements.	0-11

Method of Instruction:
Methods of instructions may include, but are not limited to, the following: lectures, textbook worksheets, hands-on worksheets, internet readings, large and small group discussions, audiovisual aids, and demonstrations.

Attendance:

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Automotive Technology
Classroom & Shop Policy

Classroom:
No Eating during lectures (coffee or drinks allowed). Respect your fellow student's space and property. Be on time so as to not disturb others during lectures. If you miss a class you are responsible to make up all work. Bring required material to every class session. Computers are to be used only for school related projects or assignments. No cell phones will be used during class, this include "**Texting**" all phones must be set to silent/vibrate and if you must take a call please leave the classroom quietly. No stereo's or music allowed in the classroom or lab area. If you are having trouble with the course and/or personal problems, communicate with the instructor as soon as possible so as to get the help needed. Students have the right to experience a positive learning environment; students who disrupt that environment can be asked to leave the class. Please refer to catalog for more information. Swearing, negative remarks and discriminatory statements will not be tolerated. If someone says anything to you that makes you feel uncomfortable or that you feel is inappropriate contact your instructor immediately.

Shop/ Lab Area

- Safety test must be passed to work in the shop and complete required lab exercise.
- Safety glasses are required to be worn at all times while in the shop area, safety glasses are the student responsibility (students not wearing safety glasses will be ask to leave the class for that day no exceptions).
- Clean up your area and any other lose debris or trash.
- Wear all required safety protection and comply with posted signs.
- No shorts or open toe foot wear, always be prepared to go into the lab area.
- Comply with tool check out policy and return tools clean.
- Do not perform any work on any vehicle outside the assigned task without permission from your instructor.
- Long hair must be kept in a ponytail or tucked away for safety**.**

Faculty and Staff
All students are required to take direction from any faculty, any issues with direction should be brought up to your instructor, however all staff has the right to direct any student at any time. Please respect the staff's decisions.

Safety Requirements:
For every task perform in Automotive Electronics course the following safety requirements must be strictly enforce:
Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

Parking:
No student parking by the building, the only exception is on lab time if your vehicle is a project (instructor approved). Speed limit must be kept at or under 5MPH.
Parking permit is required at all times.

Projects:
All projects are to be taken with the student's unless otherwise approve by the instructor.
All approve projects must be removed from campus prior to finals.
All projects must have a written work order (R/O).

Shop Maintenance:
All work will cease 20 minutes prior to end of class.
All work areas must be cleaned.
Tools must be cleaned and returned to the tool room.
Any broken or missing tools must be reported immediately. Tools are student's responsibility.

Academic Honesty:

- Plagiarism is to take and present as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to correctly 'cite a source', you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment or using or attempting to use materials, or assisting others in using materials, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question.

  Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment ;(c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment, (e) use of a commercial term paper service

Special Needs:

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. If you feel you need to be evaluated for educational accommodations, the DSP&S office is located in Building 2100, telephone 760-355-6313.

Course Instructional Schedule and Learning Activities:

Week 1: Class Introduction.
Class Orientation
Safety Orientation
Class Activities
Using Textbook, Homework,
Review questions and workbook.
Exams and Lab Activities

Week 2-3: Chapter 8: Fundamentals of electricity
Lab. Activity: Identify and interpret electrical/electronic system concern
Research applicable vehicle and service information, such as electrical/electronic system operation
Locate and interpret vehicle and major components identification numbers

Week 4: Meters, Testers, and Analyzers

Lab. Activity: Demonstrate the proper use of a digital multimeter (DMM)
Week 5-6: Chapter 28-29: Batteries and Battery Service
Lab. Activity: Perform battery state-of-charge, perform battery capacity test, maintain or restore electronic memory functions, perform battery charge.

Week 7-8: Chapter 30-31: Starting System Fundamentals and Service
Lab. Activity: Perform starter current draw test, perform starter circuit voltage drop test, inspect and test starter relays and solenoids, remove and install starter, inspect and test switches, connectors, and wires of a starter control circuit.

Week 9: **Mid-Term**

Week 10-11: Chapter 32-33: Charging System Fundamentals and Service
Lab. Activity: Perform charging system output test, diagnose charging system, inspect, adjust, or replace alternator drive belts, pulleys, and tensioners.

Week 12-13: Chapter 37-38: Accessories Diagnosis and Repair
Lab. Activity: Remove and reinstall door panel, diagnose body electronic systems circuits using a scan-tool, check for module communication errors using a scan tool, perform software transfers, software updates, or flash reprogramming on electronic modules.

Week 14: Chapter 34: Ignition System Fundamentals
Lab Activity: Inspect and test ignition primary and secondary systems

Week 15: Preparation for final exam

Week 16: FINAL EXAM

Instructor Office Hours:

Monday:	**10:30 am - 11:30 am**
Tuesday:	**3:05 pm – 4:05 pm**
Wednesday:	**3:05 pm – 4:05 pm**
Thursday:	**10:30 am – 11:30 am**
By Appointment:	**Contact me at 355-6403 or ricardo.pradis@imperial.edu**

In Case of Emergency:
If you have a life-threatening illness or injury that requires an ambulance, call 911immediately Emergency costs are not covered by Student Health Services.

Student Counseling and Health Services:
Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see http://www.imperial.edu/students/student-health-center/. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Information Literacy:
Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at **http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/**

Student Rights and Responsibilities:
Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at **http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762**