IMPERIAL VALLEY COLLEGE

LEARNING FOR SUCCESS

AUTOMOTIVE TECHNOLOGY

AUT-130

AUTOMOTIVE ELECTRONICS 1

COURSE SYLLABUS

INSTRUCTOR:
RICARDO PRADIS

FALL 2013

IMPERIAL VALLEY COLLEGE
Industrial Technology Division
Automotive Department

Course title:	**AUT-130 Automotive Electronics I**
Instructor:	**Ricardo Pradis**
Telephone:	**(760) 355-6403**
E-mail:	**ricardo.pradis@imperial.edu**
Semester:	**Fall 2013**
Location:	**Room 1100 lecture**
	Room 1102 laboratory
Secretary:	**(760) 355-6361**
Coordinator:	**Mr. Lopez**
	(760) 355-6362

Class Meeting:

Wednesday 8:35 – 10:25 am
Thursday 1:00 – 4:20 pm

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.

Institutional Student Learning Outcomes (ISLO)

Student learning outcomes are written statements that represent faculty and departmental learning goals for students. After successful completion of the program or degree at Imperial Valley College, students are expected to have measurable improvement in the following areas:

- ISLO 1: Communication Skills
- ISLO 2: Critical Thinking Skills
- ISLO 3: Personal Responsibility
- ISLO 4: Information Literacy
- ISLO 5: Global Awareness

AUT-130 Automotive Electronics will provide students with learning opportunities to improve in five of the Institutional Learning Outcomes: Communication Skills (SLO1), Critical Thinking (SLO2), Personal Responsibility (SLO3), Information Literacy (SLO4) and Global Awareness (SLO 5).

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

- State the basics of the electron theory of electricity
- Employ Ohm's law in troubleshooting electrical circuits
- Recognize the tremendous effect of electronics on automotive advances
- Give two methods of rating battery performance
- Describe how the starting system works
- Give examples of possible causes of starting system problems
- Explain the principle of electromagnetic induction
- Name the major components of an alternator
- Give quick checks for solving charging system problems
- Explain how the different types of ignition system operate

Grading Criteria:

1. Attendance: First day of class, regular attendance, and withdrawal after exceeding the number of class hours per week.
2. Tardiness: Three times equals one absent.
3. Student Conduct: Upon entry into IVC constitutes the student's acceptance of the standards of student conduct and the regulations publish by the college.
4. Each student is responsible for making up schoolwork missed because of absences.
5. 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
6. Very important:
    - **Mid-Term** (60 points) will be given on October 9. It will be a multiple choice test **Bring your Scantron, and pencil.**
    - **Final-Exam** (60 points) will be given on December 4. 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 requirements.	14-15
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.

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.

Special Needs:

If you have any form of disability, please inform the instructor so that you can get the assistance you may need. Please contact DSPS office as soon as possible: 355-6312, 2100 Bldg. I have made every effort to ensure that this course is accessible to all students, including students with disabilities. If you encounter any problem during this course, please contact me 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.

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

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.

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.

Course Instructional Schedule and Learning Activities:

Week 1: Class Introduction.
Class Orientation
Safety Orientation
Class Activities
Using Textbook, Homework
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:	**10:00 am - 11:00 am**
Tuesday:	**10:25 am – 11:25 am**
Wednesday:	**10:35 am – 11:35 am**
Friday:	**10:00 am – 11:00 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.

The Student Health Fee allows the students to receive health services on campus an at various health centers in the community. For more information refer to the IVC web page.

Important Dates:

August 19 classes begin.
August 19-31 late registration
August 31 deadline to register for full-term courses, deadline to drop full-term classes without owing fees and/or be eligible for refund
September 2 deadline to drop without course appearing on transcript (without receiving a W)
September 2 Holiday – Labor Day; no classes
September 3 Ticketing for parking violations begins
November 1 deadline to submit petition for graduation
November 9 deadline to drop full term classes
November 11 Holiday – in Honor of Veterans' Day; no classes
November 28-30 Holiday – Thanksgiving; no classes
December 2-7 last week of classes