IMPERIAL VALLEY COLLEGE

Basic Course Information

Semester:	**FALL 2024**	Instructor Name:	**Ricardo Pradis**
Course Title & #:	**Auto-Electronics I AUT-130**	Email:	**ricardo.pradis@imperial.edu**
CRN #:	**10915**	Webpage (optional):	
Classroom:	**BLDG 1100**	Office #:	**1100 bldg.**
Class Dates:	**AUG 14-DEC 9**	Office Hours:	**7:30-8:30 am T-TH**
Class Days:	**Tuesday's & Thursdays**	Office Phone #:	**760-355-6403**
Class Times:	**8:30-9:35 am** **9:35-11:00 am**	Emergency Contact:	**760-355-6361 (Secretary)**
Units:	**3.0**	Class Format:	**Face to Face**

Course Description

This introductory course covers the study of automotive electrical systems including basic diagnosis and service procedures on the various systems. Student will analyze, test, and repair electrical problems using electronic equipment. Topics also include the construction, operation, and function of automotive electrical components. (CSU)

Course Prerequisite(s) and/or Corequisite(s)

None

Student 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.

Course Objectives

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.

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Textbooks & Other Resources or Links

Textbook: G-W Modern Automotive Technology 10th Edition ISBN: 978-1-64564-688-4

Course Requirements and Instructional Methods

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.

Out of class:
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.

Course Grading Based on Course Objectives

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** will be given on Oct. 3.
    - **Final-Exam** will be given on Dec. 5.
    - There are no make-up exams unless you have a very good reason and plan 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

Course Policies

- 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.

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.

Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Other Course Information

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 footwear, 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.

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, no loud music.
A 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.

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit http://www.imperial.edu/studentresources or click the heart icon in Canvas.

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Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 Aug- 12-16	Syllabus & Introduction, Ford Service Training Chapter 5 Auto Shop Safety	Pages 55-66
Week 2 Aug- 19-23	Chapter 7 Service information & work orders Lab: Use Multimeter to Test Voltage, Resistance, Current	Pages 193-202
Week 3 Aug-26-30	Chapter 17 Electrical Principles Lab: Use Multimeter to Test Voltage, Resistance, Current	Pages 203-210
Week 4 Sep-3-6	Chapter 18 Circuit Types and Ohms Law Lab: Calculate Ohms Law.	Pages 211-227
Week 5 Sep- 9-13	Chapter 19 Electrical Components Lab: Test Electrical Components.	Pages 228-236
Week 6 Sep 16-20	Chapter 21 Wiring Diagrams and Wiring Repairs Lab: read and interpret wiring diagrams.	Pages 237-261
Week 7 Sep- 23-27	Chapter 22 Basic Electrical Test Lab: Use testing devices to check circuit operation.	Pages 262-277
Week 8 Oct- 30-Sep 4	MID-TERM	EXAM
Week 9 Oct- 7-11	Chapter 28 & 29 Battery Technology Lab: Visually inspect a Battery, Perform Common Battery Test, Replace clean & Charge Battery.	Pages 355-387
Week 10 Oct 14-18	Chapter 30 Starting System Technology Lab: Perform Common 12V starting System Test, Remove and Install a Starting System Motor, Diagnose 12V starting System Troubles.	Pages 388-399
Week 11 Oct-21-25	Chapter 31 Starting System Diagnosis, Testing, & Repair. Lab: Disassemble and Repair a Starting System Motor.	Pages 400-411

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 12 Oct-28Nov-1	Chapter 32 Charging system technology Lab: Test 12 Volt Charging System with a Voltmeter, Load Tester, and Scan Tool.	Pages 412-421
Week 13 Nov-4-7	Chapter 33 Charging system diagnosis and repair Lab: Remove and Reinstall an Alternator. Rebuild an Alternator.	Pages 422-432
Week 14 Nov- 12-15	Chapter 36 Lights, Instrumentation and Wipers Lab: inspect lighting systems, perform light system service. inspect dash Instrumentation, windshield wipers, & horns.	Pages 460-484
Week 15 Nov 18-22	Chapter 37 Power accessories and sound systems Lab: Inspect Radios, Power Windows, Door Locks, Trunk Release, Cruise Controls, Power Mirrors, Driver Information Center.	Pages 485-503
Week 16 Dec-2-6	FINAL-EXAM	EXAM

*****Subject to change without prior notice*****

Work-based Learning

Career possibilities in the automotive industry:

Work-based learning (WBL) allows student to apply classroom content in professional settings while gaining real-work experiences. These opportunities will provide you with a deeper, more engaging and relevant learning environment. Some examples of WBL assignments are job shadowing, informational interviews, and guest speakers. In this course, you will be working on workplace simulations and will be using Ford Service Training online program. It is intended to provide students with simple knowledge (basic) to complex skills (advance) training.

Contact:

Office Phone: (760) 355-5721

Email: careerservicescenter@imperial.edu

Hours of Operation:

Monday - Friday; 8:00 a.m. to 5:00 p.m.