



IMPERIAL VALLEY COLLEGE

## Basic Course Information

Semester:	Fall 2023	Instructor Name:	Rafael Serrano
Course Title & #:	ELTR-120-Electronic Devices	Email:	rafael.serrano@imperial.edu
CRN #:	10399	Webpage (optional):	N/A
Classroom:	3110	Office #:	3121
Class Dates:	8/14/2023 - 12/9/2023	Office Hours:	1130-1230
Class Days:	Monday-Wednesday	Office Phone #:	
Class Times:	0800-1110	Emergency Contact:	
Units:	4.00	Class Format:	Face to Face

## Course Description

This course covers a study of basic electronics laws and components in dc circuits. It emphasizes voltage, current, and resistance relationships. An introduction to magnetism is also included. (CSU)

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

None

## Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Familiarize with Resistive AC circuits and their basic formulas.
2. Describe the function of Inductors in DC and AC circuits using their voltage and current equations.
3. Analyze series RL circuits and obtain their respective behavior equations.

## Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate the correct safety practices and procedures used in the laboratory.
2. Properly operate and accurately read conventional d.c. meters; utilize dc meters in testing various circuits.
3. Demonstrate the function and purpose of potentiometers and rheostats.
4. Construct resistive circuits utilizing the protoboard, resistors, and conventional hand tools.
5. Experimentally validate Ohm's law expression.
6. Recognize a series of circuits and compare mathematical relationships and calculations to the measured values.
7. Construct series aiding and opposing circuits and measure current and voltage, and anticipate correct polarity of connections.
8. Accurately measure current in parallel circuits utilizing Ohm's Law to verify measurements.
9. Understand magnetism and magnetic units.
10. Construct, test, and troubleshoot various series dc circuits.
11. Construct, test, and troubleshoot various parallel dc circuits.

12. Experimentally validate Kirchoff's voltage and current laws.

### Textbooks & Other Resources or Links

Floyd, Thomas L. & Buchla, David M.. 2013. Electronic Fundamentals: A Sytmes Approach. 1st Ed. Pearson Education Limited. ISBN: 978-0133143638.

### 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.

Reading and Writing: Reading book chapters, answering questions, and/or writing short essays when directed.

Students will read a chapter from the textbook related to Low Voltage Systems each week. Students will complete assigned review questions at the end of each chapter and must be turned in the following week.

### Course Grading Based on Course Objectives

Grading will be on a points system

1. Grading system:

- A=900-1000 of points= Excellent
- B=800-899 of points= Good
- C=700-799 of points= Satisfactory
- D= 600-699 of points= Pass, less than satisfactory
- F= Less than 600 of points= Failing

2. Very important:

- Mid-Term will be given on October 5.
- Final-Exam will be given on December 5.
- There are no make-up exams unless you have a very good reason and make arrangements with the instructor **before** the exam.

Midterm Exam	250
Final Exam	250
Homework and Quizzes	250
Lab Assignments and EXIT Tickets	250

Total	1000
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## Course Policies

- Attendance is important.
- 1 excused absence is allowed but notifications must be made.
- 2 10 minute tardies equal 1 absence
- 4 unexcused absences equals to being dropped from the class.
- It's the students responsibility to drop or officially withdraw from the class by no later than Nov. 4th 2023.
- Students are expected to show up to class on time and in the proper attire.
- No open toe shoes will be allowed as this is an industrial environment.
- Provided PPE will be worn during lab sessions and horseplay or pranks will not be tolerated.
- Please keep phones on silent and use them to a minimum.
- There will be no name calling or putting down of any sorts.
- Remember the "Golden Rule".
- Please do not interrupt when someone is speaking and wait your turn.
- Assignments will be due at the following class meeting.

## Other Course Information

None

## 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.

## Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 August 14 - 19	Syllabus & Introduction  Chapter 1-8 Electrical Safety	Page 23-26
Week 2 August 21 - 25	Chapter 2-5:Resistance	Page 50-58
Week 3 August 28- September 1	Chapter 2-7:Basic Circuit Measurements	Page 66-72
Week 4 September 5 - 8	Chapter 3-1:Ohms Law Chapter 3-2:Application of Ohms Law	Page 82-92

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 5 September 11 - 15	Week 1-4 Test Chapter 3-3:Energy and Power Chapter 3-4:Power in an Electric Circuit	Page 92-97
Week 6 September 18 - 22	Chapter 3-5:Power Rating of Resistors Chapter 3-6:Energy Conversion and Voltage Drop in a Resistance	Page 98-102
Week 7 September 25 - 29	Chapter 3-7: Power Supplies and Batteries Chapter 3-8: Introduction to Troubleshooting	Page 103-106
Week 8 October 2 - 6 MIDTERM	Chapter 4-1:Resistors in Series Chapter 4-2:Total Series Resistance Chapter 4-3:Current in a Series Circuit	Page 122-129
Week 9 October 9 - 13	Chapter 4-4:Application of Ohms Law Chapter 4-5:Voltage Sources in Series Chapter 4-6:Kirchhoff's Voltage Law	Page 130-140
Week 10 October 16 - 20	Chapter 4-8:Power in a Series Circuit Chapter 4-9: Voltage Measurements Chapter 4-10: Troubleshooting	Page 147-152
Week 11 October 23 - 27	Chapter 5-1:Resistors in Parallel Chapter 5-2:Total Parallel Resistance Chapter 5-3:Voltage in a Parallel Circuit	Page 174-184
Week 12 October 30 November 3	Chapter 5-4:Application of Ohms Law Chapter 5-5:Kirchhoff's Current Law Chapter 5-6:Current Dividers	Page 185-196
Week 13 November 5 - 10	Chapter 5-7:Power in Parallel Circuits Chapter 5-8:Troubleshooting	Page 197-204
Week 14 November 13 - 17	Chapter 6:Series-Parallel Circuits	Page 217
	THANKSGIVING BREAK November 18-26	
Week 15 November 27 December 1	Chapter 7:Magnetism and Electromagnetism	Page 277
Week 16 December 4 - 8 FINAL	COURSE REVIEW FINAL EXAM	

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