VALENCIACOLLEGE

Department of Electronics Engineering Technology
Division of Engineering, Computer Programming, & Technology
West Campus Building 9, Room 140 (407) 582-1902/1903
https://valenciacollege.edu/academics/departments/engineering/ **Fall 2023**

Course Syllabus: EET1214C – Introduction to Engineering Technology – CRN 10346

Catalog Course Description: A course involving laboratory environment learning. Student will learn to identify electronic components, use computer circuit simulators, solder and desolder components, and use the basic lab instruments for testing and troubleshooting. Student will be required to build a kit and demonstrate functionality and workmanship. (Special Fee: $64.00)

Major Learning Outcomes:

- Students will have an understanding of safety issues related to the laboratory environment and electrical shock hazards in general
- Student will learn to identify physical electronic components, their schematic symbols, and their values
- Student will learn to identify analog and digital schematics and the corresponding inputs, outputs, and power connections (MultiSIM & Bench)
- Student will be introduced to digital circuits (MultiSIM & Bench)
- Student will be introduced to Direct Current (DC) circuits (MultiSIM & Bench)
- Student will be introduced to Alternating Current (AC) circuits (MultiSIM & Bench)
- Student will be introduced to soldering and soldering equipment

Prerequisites: None

Class Time and Location for Lecture and Lab: Monday, 5:30 – 9 PM, Building 11 – Room 244

Lab Manual: EET 1214C Introduction to Engineering Technology Lab Manual

Required Materials:

- Scientific calculator (at least a Casio fx-115W or the equivalent)
- Soldering Kit for EET 1214C
- Highlighter and pencil or erasable pen
- USB flash drive

Professor's Information:

Instructor: Dr. V. Rajaravivarma
Office: West Campus, Bldg. 9 – Room 118
Phones: (Office) 407.582.5739
Email: vrajaravivarma@mail.valenciacollege.edu

Office Hours:

Bldg. 9 – Room 118:	Monday 1:30 – 2:30 PM
	Monday 4:30 – 5:30 PM
	Tuesday 1:30 – 2:30 PM
	Tuesday 4:30 – 5:30 PM
E-mail/Canvas message:	Wednesday 8:00 – 11:00 AM
	Thursday 8:00 – 11:00 AM
	Friday 8:00 - 10:00 AM

Phone/video call/Office 9-118 in person: by appointment

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Student Performance Assessment:

A	90-100%
B	80 - 89%
C	70 – 79%
D	60 – 69%
F	< 60%

My Education Plan.....5%
AC Circuit Team Video Presentation.....5%
Circuit Analysis Calculation Homework (5 Total).....5%
Exercise Lab Reports and Multisim Analysis.....25%
Soldering Project.....10%
Midterm (Exam # 1 & Exam # 2).....30%
Final Exam (Comprehensive).....20%

Valencia College Support Systems:

- West Campus Communications Center
  https://valenciacollege.edu/students/learning-support/west/communications/
- West Campus Math Center
  https://valenciacollege.edu/students/learning-support/west/math/
- Internship and Workforce Services
  http://valenciacollege.edu/internship/
- Valencia College's Free Skillshops
  https://valenciacollege.edu/students/student-services/skillshops.php
- **Online Tutoring Services:**
  For tutoring in accounting, economics, computer programming, math, EAP and foreign languages, science, writing, and more,
  visit https://libguides.valenciacollege.edu/c.php?g=1014597&p=7348794 and self-enroll in the tutoring courses in Canvas. This is where you will access the links to live tutoring (via Zoom), as well as the schedule of tutors, times, services, and additional topics through Smarthinking.
- **Quick Start Library Guide:** Use this handy guide to learn about and gain access to all the library resources from home or on-the-go. Visit
  http://libguides.valenciacollege.edu/quickstartlibraryguide to get started!
- **Keep Learning:** Visit https://valenciacollege.edu/students/online/keep-learning/ if you are still unable to find what you are looking for, please visit our Keep Learning webpage to get information on a wide range of resources and online learning tips.
- Check out this link below to access our Virtual EET/ECET Open Lab in MS Teams:
  https://teams.microsoft.com/l/channel/19%3acf051fa2d1144c27bd76f2b61c9f7add%40thread.tacv2/EET%2520and%2520ECET?groupId=271f65e9-813c-488b-a079-bb04aec7d484&tenantId=0e886695-3d17-41a8-8544-135b0a92a47c

Important Dates:

Drop/Refund Deadline	August 28th
No Show Reporting Period	August 30th – September 8th
Labor Day	September 4th
Veterans Day	November 10th
Student-Initiated Withdrawal Deadline ("W" Grade)	October 27th
Thanksgiving Break	November 22nd – November 26th
Final Exam	December 4th Monday @ 5:30 PM
Final Grades Viewable in Atlas	December 12th

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Course Outline for EET 1214C		
Date	**Weekly Engineering Technology Fun**	**Submit Online before class in our Canvas Course**
WEEK 1 (8-21)	**<u>In Class</u>:** ➢ Introductions ➢ Meet our ECET Lab Manager: Will Goodman ➢ Meet our ECET Career Program Advisor: Julie Nieves ➢ Begin Exercise A (Component Sheet) in Multisim…complete outside of class ➢ Begin Exercise 1A (Basic Digital Gates) in Multisim…complete outside of class **<u>In Canvas/Outside of Class</u>:** ➢ Download Multisim software on your Windows based home computer or laptop ➢ Review Syllabus and Canvas Course Set Up ➢ Check out **Exercise 1 Multisim Videos** to complete your Exercise 1 Multisim Analysis. **<u>Note</u>:** Bring your completed **Exercise 1 Multisim** analysis to our next class saved on a USB drive or email it to yourself within Canvas or Atlas… ➢ Begin completing your Education Plan… ***<u>Got Questions???</u>*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	
WEEK 2 (8-28)	**<u>In Class</u>:** ➢ Exercise 1B (Basic Digital Gates) on the bench **<u>In Canvas/Outside of Class</u>:** ➢ Complete and submit your Exercise 1 Lab Report… [*Details under Assignments in Canvas*] ➢ Check out **Exercise 2 Multisim Videos** and complete Exercise 2A. **<u>Note</u>:** Bring your completed Exercise 2A Multisim analysis to next week's class saved on a USB drive or email it to yourself within Canvas or Atlas… ***<u>Got Questions???</u>*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ **Exercise A**

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WEEK 3 (9-11)	**In Class:** ➢ Exercise 2B (Digital Circuits) on the bench **In Canvas/Outside of Class:** ➢ Complete and submit your Exercise 2 Lab Report… ➢ Review Exercises 1 and 2 in preparation for your upcoming Digital Circuits Quiz (Multisim/Bench) ➢ Complete *Circuit Analysis Calculation Homework 1*: Complete Boolean Expression extractions on 1 input, 2 input, 3 input, and 4 input truth tables. Submit a scan of your work under Assignments in Canvas. ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 1 Lab Report***
WEEK 4 (9-18)	**In Class:** ➢ Exercise 3 in Multisim ➢ **Exam # 1 Digital Circuits (Multisim/Bench)** **In Canvas/Outside of Class:** ➢ Complete and submit your Education Plan ➢ Complete *Circuit Analysis Calculation Homework 2*: Number Notation exercises on pages 38-41 in lab manual. Submit a scan of your work under Assignments in Canvas. ➢ Review the two resistance presentations under Modules/Lectures ➢ Check out **Exercise 3 Multisim Videos** and complete Exercise 3 in Multisim. **Note:** Bring your completed Exercise 3 Multisim analysis to our next class saved on a USB drive or email it to yourself within Canvas or Atlas… ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 2 Lab Report*** ➢ Circuit Analysis Calculation Homework 1
WEEK 5 (9-25)	**In Class:** ➢ Begin Exercise 3 (Resistance Measurements) on the bench …complete outside of class **In Canvas/Outside of Class:** ➢ Complete and submit your Exercise 3 Lab Report…	➢ **My Education Plan** [Email your completed education plan to your program advisor and **copy Dr. Rajaravivarma** to earn Full Credit for this assignment]

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	➢ Review "Ohm's Law" and "DC Basics" presentations under Modules/Lectures ➢ Check out **Exercise 4 Multisim Videos** to complete your Exercise 4 Multisim Analysis. **Note:** Bring your completed Exercise 4 Multisim analysis to our next class saved on a USB drive or email it to yourself within Canvas or Atlas… ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ Circuit Analysis Calculation Homework 2
WEEK 6 (10-2)	**In Class:** ➢ Exercise 4B (DC Circuit Measurements) on the bench **In Canvas/Outside of Class:** ➢ Complete and submit your Exercise 4 Lab Report… ➢ Complete *Circuit Analysis Calculation Homework 3*: Complete lab manual exercises on pages 61-62 in lab manual. Submit a scan of your work under Assignments in Canvas. ➢ Check out **Exercise 5 Multisim Videos** and complete Exercise 5A. **Note:** Bring your completed Exercise 5A Multisim analysis to next week's class saved on a USB drive or email it to yourself within Canvas or Atlas… ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 3 Lab Report***
WEEK 7 (10-9)	**In Class:** ➢ Exercise 5B (Multipath Voltage and Current Measurements) on the bench **In Canvas/Outside of Class:** ➢ Complete and submit your Exercise 5 Lab Report… ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 4 Lab Report*** ➢ Circuit Analysis Calculation Homework 3

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WEEK 8 (10-16)	**<u>In Class</u>:** ➢ Begin Exercise 6A in Multisim…complete outside of class ➢ Exercise 6B (KVL & KCL Series-Parallel DC Circuit Analysis) on the bench **<u>In Canvas/Outside of Class</u>:** ➢ Complete and submit your Exercise 6 Lab Report… ➢ Complete *Circuit Analysis Calculation Homework 4*: Complete KVL analysis, KCL analysis, ammeter, and voltmeter placement on series, parallel, and series-parallel circuits in lab manual. Submit a scan of your work under Assignments in Canvas. ➢ Review Exercises 3 through 6 in preparation for your upcoming **DC Circuits Quiz (Multisim/Bench)** ***<u>Got Questions???</u>*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 5 Lab Report***
WEEK 9 (10-23)	**<u>In Class</u>:** ➢ **AC Circuit Team Member Assignment** ➢ **Exam # 2 DC Circuits (Multisim/Bench)** **<u>In Canvas/Outside of Class</u>:** ➢ Reach out to your AC Circuit Team Members to exchange contact and meeting availability information and begin reviewing your team's video presentation assignment requirements within Canvas… ➢ Review "AC Basics" presentation under Modules/Lectures ***<u>Got Questions???</u>*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 6 Lab Report*** ➢ Circuit Analysis Calculation Homework 4
WEEK 10 (10-30)	**<u>In Class</u>:** ➢ Begin Exercise 7A in Multisim…complete outside of class **<u>In Canvas/Outside of Class</u>:** ➢ Begin completing your AC Circuit Team Video Presentation… ➢ Check out **Exercise 7 Multisim Videos** to complete your Exercise 7 Multisim Analysis. **<u>Note</u>:** Bring your completed Exercise 7 Multisim analysis to next week's class saved on a USB drive or email it to yourself within Canvas or Atlas…	

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	Student Success Tip!!! Meet up with your fellow AC Circuit Team Members either virtually or in person to work on completing your Exercise 7 Multisim analysis assignment together! ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	
WEEK 11 (11-6)	**In Class:** ➢ Exercise 7B (Analog Measurements Using the Oscilloscope) on the bench **In Canvas/Outside of Class:** ➢ Complete and submit your Exercise 7 Lab Report… ➢ Continue to complete your AC Circuit Team Video Presentation… ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	
WEEK 12 (11-13)	**In Class:** ➢ Begin Exercise 8A/9A in Multisim…complete outside of class **In Canvas/Outside of Class:** ➢ Continue to complete your AC Circuit Team Video Presentation… ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 7 Lab Report***
WEEK 13 (11-20)	**In Class:** ➢ Exercise 8B/9B (Series RC & RL AC Circuit Analysis with Oscilloscop/Oscope & Square Wave Analysis in Digital Circuits) on the bench **Exam # 3 - AC Circuits (Multisim/Bench)** **In Canvas/Outside of Class:** ➢ Complete and submit your Exercise 8 Lab Report… ➢ Continue to complete your **AC Circuit Team Video** Presentation… ➢ Complete *Circuit Analysis Calculation Homework 5*: Complete AC Circuit Voltage Analysis. Submit a scan of your	

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	work under Assignments in Canvas. ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	
WEEK 14 (11-27)	**In Class:** ➢ Complete Soldering Project **In Canvas/Outside of Class:** ➢ Complete and submit your Exercise 9 Lab Report… ➢ Complete and submit your AC Circuit Team Video Presentation… ➢ Review Exercises 7 through 9 and the AC Circuit Team Video Presentations in preparation for your upcoming Exam ***Got Questions???*** ➢ Swing by Dr. Rajaravivarma's office: Face-to-Face and/or online in zoom! ➢ Swing by our ECET Open Lab (9-211) to practice, practice, PRACTICE!!!	➢ ***Exercise 8/9 Lab Report*** ➢ ***AC Circuit Team Video Presentation*** (post in 2 places within Canvas): • Each team member posts the same team video • One team member also posts their team video on Discussion Board for entire class ➢ Circuit Analysis Calculation Homework 5
WEEK 15 (12-4)	**In Class:** ➢ **(Comprehensive: Digital~DC~AC (Multisim/Bench)**	➢ **Final Exam**

Lab Requirements & Written Report:

- A **typed** lab report will accompany every exercise done in this course. **A PDF file** of the lab

COVER PAGE: Includes Title of the Laboratory, your name, Course Title & Number, Submitted to: Instructor Name, Department Label, and Date of Submission – all in the same order.

INTRODUCTION: What are your goals or objectives in this lab? Explain what you are attempting to learn. In your lab manual or your lecture notes, look up the theory behind what experiment you are performing and discuss away.

PARTS LIST: All parts and equipment used should be listed in this section.

DISCUSSION: ***An in-depth description of the background and theoretical information researched relevant to the experiment. When applicable, governing laws and/or equations should be included***.

1. In your own words discuss the important topics related to the experiment. Use the textbook and other resources to assist you with the necessary information required for this section of the report.
2. Include **sketches, diagrams, drawings and pictures taken** of the experimental Set-Up and how you intend to fulfill your purpose.

VALIDATION OF DATA AND RESULTS:

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Measured data and calculations; presentation of data through tables and graphs; sketch of experimental configuration; and discussion of experimental results, sources of error(s), and accuracy of measurements.

Refer specifically to the data collected during your experiment. Discuss any trends that you observed in your data. Do these data trends support the theory behind this lab? Why or why not?

ANSWERS TO LAB QUESTIONS: Some lab exercises have questions at the end. They must be answered in this section of the Lab Report.

CONCLUSION: Briefly summarize the results of the experiment. Did the experiment yield the desired results? Give your interpretation of the results. What has been learned, recommendation for future work or improvements in the experiment.

Rules and Comments:

- All forms of academic dishonesty are prohibited at Valencia College. Academic dishonesty includes, but is not limited to, acts or attempted acts of plagiarism, cheating, furnishing false information, forgery, alteration or misuse of documents, misconduct during a testing situation, facilitating academic dishonesty, and misuse of identification with intent to defraud or deceive.

  Disciplinary procedures for incidents of academic dishonesty will involve both academic action and administrative action for behavior against the campus regulations of student conduct. Academic action may include any of the following: (1) withdrawal of the student; (2) assigning a final grade of "F"; (3) awarding a failing mark on the test or paper in question; (4) requiring the student to retake the test or resubmit the paper.

- You are expected to be in class **on time.** You are responsible for all information and/or assignments given during class, whether you are present or not.

- **NO LATE WORK** will be accepted (no exceptions).

- **NO MAKE UPS** on missed lab assignments or missed exams (no exceptions).

- Students MUST complete the required pre-lab Multisim assignment before class begins.

- Use pencil or erasable pen **ONLY** and **erase all errors** when recording data within your lab manual.

- Lab reports are to be submitted in an organized, well documented, and structured manner representative of the student's best effort. No hand-written material will be accepted in the lab reports.

- As we embark upon completing various lab experiments within this course during which you will be recording various data within your lab manual, be diligent every step of the way to try and record an explanation of why you think your circuit is behaving as you are observing it during the lab and not to simply just note down your data observations

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without conveying some reason as to why they might be occurring.

- No audio or video recording allowed in class unless prior permission is granted from professor and every student in the class.

- It is the student's responsibility to withdraw from the course.

Student Core Competencies:

The faculty members of Valencia College have established four Core Competencies that describe the learning outcomes for a Valencia graduate. They are: THINK, VALUE, COMMUNICATE, and ACT. These general competencies can be applied in many contexts and must be developed over a lifetime. They specify how learning can be expressed and assessed in practice. They enable students and faculty to set learning goals and assess learning within and across the many disciplines of human inquiry. Use the descriptions and examples of academic work for each to measure your own learning outcomes. Samples of the academic work are great additions to your Learning Portfolio.

Expected Student Conduct:

Valencia College is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in the disruption of a class may be directed by the faculty member to leave the class. Violation of any classroom or Valencia's rules may lead to disciplinary action up to and including expulsion from Valencia. Disciplinary action could include being withdrawn from class, disciplinary warning, probation, suspension, expulsion, or other appropriate and authorized actions. You will find the Student Code of Conduct in the current Valencia Student Handbook

Students with disabilities who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).

Valencia College is interested in making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help with issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home, or work. BayCare Behavioral Health Student Assistance Program (SAP) services are free to all Valencia students and available 24 hours a day by calling (800) 878-5470. Free face-to-face counseling is also available.

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