

ECE103

Spring 2024. T/R 11:00AM- 11:50AM. Scott Bioengineering 101

**General information**

Instructors

Mario Marconi. ([mario.marconi@colostate.edu](mailto:mario.marconi@colostate.edu))

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Teaching Assistant

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Contact the TA only about issues related with **Laboratory exclusively**. For all other issues contact Prof. Marconi

Textbook: "Fundamentals of Electric Circuits" by A.K. Alexander and M.N.O. Sadiku. Smart book version

Grading criteria

First exam: 15%

Second exam: 15%

Quizzes: 15%

Final: 25%

Homework 10%

Laboratory 15%

Reading assignments 5%

The system +/- will be used in this class

Quizzes dates

Quiz 1 (Chapter 1)	Thursday January 25
Quiz 2 (Chapter 2)	Tuesday February 6
Quiz 3 (Chapter 3)	Tuesday February 20
Quiz 4 (Chapter 4)	Tuesday March 5
Quiz 5 (Chapter 5)	Tuesday April 2
Quiz 6 (Chapter 6)	Thursday April 11
Quiz 7 (Chapter 7)	Tuesday April 23

Exams dates:

<i>First Midterm Exam</i>	<i>Thursday March 7</i>
<i>Second Midterm Exam</i>	<i>Thursday April 25</i>
<i>Final</i>	<i>Wednesday May 8 6:20 to 8:20 PM</i>

*Grading scale:*

95+	A+	75-79.99	B	40-54.99	D
90-94.99	A	70-74.99	B-	<40	F
85-89.99	A-	65-69.99	C+		
80-84.99	B+	55-64.99	C		

Homework Instructions.

All homeworks will be solved on line using the Connect registration

- Homeworks will be assigned weekly. Homeworks must be completed in the McGraw Hill website (Connect). Any HW submitted after the deadline will have a penalty. The deadline will be indicated in each homework
- There will be reading assignments that will count as 5% towards the final grade. You will find the reading assignments in the Connect section. The credit points will be awarded **ONLY** if the assignments are completed before the indicated deadlines
- Buy the access code for the smart book (CONNECT) from the CSU bookstore. It provides extended access time as compared with the code acquired in the McGraw Hill website. You might have to use your CONNECT access in ECE202
- Two attempts are allowed to complete each homework.
- If used, in the second attempt you will be able to review the problems you solved incorrectly in your first attempt
- There is no score reduction for using the second attempt. The program will keep the best score
- Solutions to the problems will be available 12 hours after the deadline
- There is a 10% penalty for each hour late after the deadline

**VERY IMPORTANT: You are responsible to submit the homework. Notice that the program DOES NOT submit automatically (you must do it manually). If you forget to submit the homework on time there it will be impossible to remove the tardiness penalty**

### Laboratory instructions.

- To pass the class you must complete all laboratory experiments and present all your laboratory reports. To complete the laboratory activities, you have a personal kit with all the necessary elements (DIGILENT Analog Device). Work at your own pace at home to complete all the labs.
- The laboratories are mandatory. The reports are individual: each student must complete the experiments and complete the personal reports. Any plagiarism will be penalized.
- For the lab activity you will use the DIGILENT package. You can complete the lab activity at home and turn in the report with uploading the file in CANVAS (or any other method previously arranged with the TA). The TA will be available to help you with the lab activity during labs consultation sections. Please read the “Announcements” in CANVAS for further details
- The first 5 lab activities and reports must be completed by the 7<sup>th</sup> week of class. The week February 26 to March 1st is a make up week for labs.
- The lab reports should be uploaded in CANVAS on a weekly basis. Any deviation from this policy must be arranged with the TA in advance
- For the first two laboratory activities you must have a CSU account. Please make sure you have the account activated before the second week of class. For any question regarding this issue, contact the Engineering Technology Service (ETS) [<https://www.engr.colostate.edu/ets/>]

### Lectures:

- All lecture notes will be posted in CANVAS, in pdf format, in the “**Modules**” folder

### IMPORTANT Miscellaneous Information

- A passing grade requires that the average for all the exams (the 2 midterms and the final) be a passing grade, this is more than 55%
- Quiz tests: After completion of each chapter, there will be a quiz. The dates for all 7 quizzes are listed above. The quiz will be simultaneous for all students, and will take place in the classroom during lecture hours

### HELP

- Office hours with Prof. Marconi will be held as virtual meetings. For office hours consulting please send an e-mail to professor Marconi ([mario.marconi@colostate.edu](mailto:mario.marconi@colostate.edu)) to arrange a virtual conference. We will use the video conference platform Zoom.
- When help is needed please use the following procedure: send a message to Prof. Marconi with your question

1. If the questions can be answered by emails, that will be the first option. Emails will be answered within 24 hours.
  2. If you need more detailed help, or the question is too complex or too long to be answered by email, we will use a video conference meeting. You will receive an email with the invitation to join a virtual meeting
- **Office hours have an open agenda.** Prof. Marconi will answer your requests on demand

*Video conference platforms information:* Zoom [<https://zoom.us/download>].

### **VERY IMPORTANT!**

*Read the announcements in CANVAS. All news, deadlines, dates and times of the exams, etc. will be posted in Announcements and in this Syllabus. If you cannot find the answer to your question, please send us (professor Marconi or TA) an email.*

### **Academic integrity**

The use of online “homework helpers” sites, including but not limited to Chegg, NoteHall, Quizlet, and Koofers is not permitted in this course. Please reach out to your professor to discuss if a specific service you are thinking about using for this course is acceptable.

**Important information for students: All students are expected and required to report any COVID-19 symptoms to the university immediately, as well as exposures or positive tests from a non-CSU testing location.**

If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID, you are required to fill out the COVID Reporter (<https://covid.colostate.edu/reporter/>). If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, it is important for the health of yourself and others that you complete the online COVID Reporter. Do not ask your instructor to report for you. If you do not have internet access to fill out the online COVID-19 Reporter, please call (970) 491-4600. You may also report concerns in your academic or living spaces regarding COVID exposures through the COVID Reporter. You will not be penalized in any way for reporting. When you complete the COVID Reporter for any reason, the CSU Public Health office is notified. Once notified, that office will contact you and, depending upon each situation, will conduct contact tracing, initiate any necessary public health requirements and notify you if you need to take any steps.

For the latest information about the University’s COVID resources and information, please visit the **CSU COVID-19 site:** <https://covid.colostate.edu/>.

## Topics

### **Basic concepts**

- System of units
- Charge, current and voltage
- Power and energy
- Circuit elements

### **Basic Laws**

- Ohm's Law
- Kirchhoff's Law
- Series and parallel resistors
- Wye-Delta transformations

### **Methods of Analysis**

- Nodal analysis
- Mesh analysis

### **Circuit Theorems**

- Linearity
- Superposition
- Thevenin's theorem
- Norton's theorem

### **Operational Amplifiers**

- Introduction
- Ideal Op Amp

### **Capacitors and Inductors**

- Introductory ideas
- Series and parallel capacitors
- Series and parallel inductors

### **First-Order Circuits**

- Source free RL and RC circuits
- Step response for RC and RL circuits
- First order OpAmp circuits

### **Second-Order Circuits**

- Source free RLC circuit (series and parallel)
- Step response for a RLC circuit (series and parallel)