

## **EE-211 CIRCUITS I LABORATORY WINTER 2023 COURSE SYLLABUS**

**Meeting Time:** W 3:35pm - 5:40pm

**Location:** Academic Building 2627 (Phil Motz Circuit Design Lab)

### **Instructor**

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### **Office Hours**

On campus: Tuesday 1:30 - 3:00pm, Wednesday, 2:00 - 3:30pm in room 2703S AB, walk-ins welcome.

Virtual office hours through Google Meet [meet.google.com/nqr-gyay-qbb](https://meet.google.com/nqr-gyay-qbb), Monday, 7:00-8:00pm, starting Jan. 16.

### **Textbook and Required Materials**

Lab Handouts/ Resources via Course in Blackboard

### **Other Materials**

Textbook for EE-210 Circuits I

### **Course Description**

An introductory laboratory course designed to reinforce the fundamental analysis techniques discussed in EE-210, Circuits I. Topics include safe use of laboratory equipment and experimental verification of analysis techniques.

### **Course Pre-requisites/Co-requisites, Credits and Contact Hours**

Pre-requisites: None

Co-requisites: EE-210 Circuits I

Credits: 1

Contact Hours: 2

### **Course Learning Outcomes**

Students who receive credit for EE-211 will have demonstrated the ability to do all of the tasks listed below:

1. Safety rules of handling electrical equipment.
2. Apply Ohm's law and Kirchhoff's laws; use color code and resistor size to determine resistance, tolerance, and power rating.
3. Use modern measuring equipment safely, such as the oscilloscope, digital and analog meters, and function generators.

4. Analyze series and parallel resistor networks and use voltage and current division concepts, and experimentally verify the results.
5. Apply circuit analysis techniques, including nodal and mesh analysis, source transformations, Thevenin and Norton equivalent circuits, and the principle of superposition, to solve for circuit variables, and perform experimental verification.
6. Measure the sinewave parameters, such as peak value, rms value, frequency, period, phase angle (leading and lagging), and dc offset.
7. Analyze impedance and model circuits with resistors, inductors, and capacitors excited by sinewaves using phasors and standard circuit analysis techniques in the frequency domain, and experimentally verify the results.
8. Convert frequency domain phasor quantities to appropriate time domain quantities and vice versa.
9. Calculate power factor, real power and reactive power for circuits driven with sinusoidal sources, and experimentally verify the results.

### Grading

Each week will count for 10% of the total grade. Points are based on lab reports/ exercises/ problems/ demos as assigned by the instructor. **Lab reports are due prior to the start of the class the week after they were assigned.** Assignments will NOT BE ACCEPTED for credit after the due date/time. A zero grade will be recorded if not submitted on time.

All grades will be regularly posted in Blackboard.

Lab Report/Problems/... (10x)	10%
	100%

### Student Participation

In-person Labs will be conducted each week. In-person attendance and active participation is expected. In-person attendance will be taken and recorded. Excessive absences (>3) may result in a substantial reduction in the overall course grade. You will be assigned a lab partner to work collaboratively on your lab assignments. You will typically submit assignments to be graded as a team.

### Letter Grade Conversion

Total Points	Letter Grade
1000 - 930	A
929 - 900	A-
899 - 870	B+
869 - 830	B
829 - 800	B-
799 - 770	C+
769 - 730	C
729 - 700	C-
699 - 650	D+
649 - 600	D
599 - 0	F

**Additional Policy Information**

In addition to the Course Syllabus please review the **University Policy Syllabus** and the **Understanding the Ethics and Academic Integrity Policies at Kettering University**, posted in Blackboard under the left-hand navigation Syllabus item.

Additionally, as future Electrical and Computer Engineers please review the **IEEE Code of Ethics**. You can find this document at <https://www.ieee.org/about/corporate/governance/p7-8.html>, and it is also posted under the Syllabus & Course Information page in Blackboard.

**Academic Assistance**

In addition to your professors, academic assistance with class work and writing is available from the Academic Success Center (ASC), <https://my.kettering.edu/page/academic-success-center-asc>

The ASC Lab, <https://my.kettering.edu/page/academic-success-center-lab> is an academic resource for you that offers: Subject Tutoring, Math Help, Study Buddy, Supplemental Instruction, Writing Support, and more.