



SYLLABUS—GENERAL INFORMATION

- Course:** ECE3423 – Circuits I, Fall 2025, Section: 01, Credits: 3
Meeting Time: TTH 8:00am - 9:15am
Meeting Location: Simrall 100
Class Web Page: <https://canvas.msstate.edu/>
- Teaching Assistant:** Ms. Mst Mostary Begum
Office Hours: Fri., 1:30 pm - 3:30 pm
Office: 246 Simrall
E-mail: mb4198@msstate.edu
- Instructor:** Dr. Chun-Hung Liu
Office: Simrall 235 (inside ECE Department Office, Simrall 216)
E-mail: chliu@ece.msstate.edu
Office Hours: 3:00pm-5:00pm Friday or by appointment
- Prerequisite:** Grade of C or better in both MA1723 and PH2223
- Textbook:** J. W. Nilsson and S. A. Riedel, Electric Circuits, 12th ed., Pearson, 2022. ISBN-13: 9780137648160
Student Syllabus Information: *This course contains materials that are part of the Bulldog Bundle. The digital materials required for this course have been integrated with Canvas and can be found in the link of “Bulldog Bundle Digital Materials” in your Canvas course. Please sign into Canvas to access your course and course materials. If you have opted out of Bulldog Bundle, be sure to purchase your course materials before the last day to add a course from an alternative source.*
- Course Objectives:** The objectives of this course are to introduce students to basic electronic elements and electronic circuits using resistors, capacitors, inductors, and op amps; to develop students’ ability to solve problems involving the application of fundamental laws of circuit analysis; to develop students’ ability to estimate the response of a circuit excited with different inputs; and to develop the students’ ability to estimate various parameters in a circuit.
- Course Topics:**
- Circuit Variables (Chapter 1)
 - Circuit Elements (Chapter 2)
 - Simple Resistive Circuits (Chapter 3)
 - Techniques of Circuit Analysis (Chapter 4)
 - Inductance and Capacitance (Chapter 6)
 - Sinusoidal Steady-State Analysis (AC circuit analysis, Chapter 9)
 - Sinusoidal Steady-State Power Calculations (AC power calculations, Chapter 10)
 - Balanced Three-Phase Circuits (part of Chapter 11)



SYLLABUS—SCHEDULE

Period	Date	Topic	Chapter
1	Aug. 21	Fundamental definitions	1
2	Aug. 26	Charge, current, & Kirchhoff's current law	2
3	28	Voltage & Kirchhoff's voltage law	2
4	Aug. 28	Power & sign conventions	2
5	30	Parallel resistance, voltage & current sources	3
6	Sep. 2	Parallel resistance, voltage & current sources	3
7	4	Nodal analysis	4
8	Sep. 9	Nodal analysis	4
9	11	Practice problems/review	
10	Sep. 16	Test I	4
11	18	Mesh analysis	4
12	Sep. 23	Mesh analysis	4
13	25	Superposition	4
14	Sep. 30	Thévenin and Norton equivalent circuits	4
15	Oct. 2	Thévenin and Norton equivalent circuits	4
16	Oct. 7	Source transformation	4
17	9	Fall break (No Class)	
18	Oct. 14	Maximum power transfer	4
19	16	Practice problems/review	
20	Oct. 21	Test II	
21	23	The ideal capacitor & inductor	6
22	Oct. 28	Equivalent capacitance and inductance	6
23	30	Equivalent capacitance and inductance	6
24	Oct. 23	Phasor	9
25	25	Passive circuit elements in the phasor domain	9
26	Oct. 30	AC circuit analysis: node-voltage method	9
27	Nov. 4	AC circuit analysis: mesh-current method	9
28	6	AC circuit analysis: Thévenin-Norton equivalent circuits	9
29	Nov. 11	Practice problems/review	
30	13	Test III	
31	Nov. 18	Instantaneous, Average, and reactive powers	10
32	20	Complex Power and Power Factor	10
33	Nov. 25	Power Factor Correction	10
34	27	Thanksgiving Holiday (No class)	
35	Dec. 2	Final Review	

FINAL EXAM

8am-11am

Wed., December 10th



SYLLABUS—CLASS POLICY

Grading: Final course grades will be based on homework and exams with weighting as described below.

Table with 2 columns: Item and Percentage. Items include Homework Assignments (12%), Test I (18%), Test II (18%), Test III (18%), Final Exam (34%), and If quizzes are given (5 (bonus)%).

Specifically, grades will be determined via the following procedure. Suppose you score hi out of Hi points on Homework Assignment i, you score ej out of Ej points on Exam j, and you score f out of F points on the Final Exam. Your average homework score H-bar is calculated as

H-bar = 1/Nh * sum from i=1 to Nh of hi/Hi

where the number of homework assignments is Nh. Your final course score s is calculated as

s = [H-bar * 0.12 + (e1/E1) * 0.18 + (e2/E2) * 0.18 + (e3/E3) * 0.18 + (f/F) * 0.34] * 100.

The average class score s-bar is calculated as the average (arithmetic mean) of final course scores s for all students in the class. The class adjustment a is calculated as

a = { 0, s-bar > 75; 75 - s-bar, else.

Your adjusted score is then

s' = round(s + a),

where round(.) denotes rounding to the nearest integer. (Note: the adjustment serves to "curve" the grades up to a mean of 75, although the mean is not "curved down" if above 75). Your final grade g is determined from your adjusted score:

g = { A, 90 <= s' <= 100; B, 80 <= s' < 90; C, 70 <= s' < 80; D, 60 <= s' < 70; F, s' < 60.



SYLLABUS—CLASS POLICY

- Expectations: The instructor expects the student to:
- Attend each class!
 - Read the book!
 - Work all the homework!
- Attendance: Please refer to Academic Operating Policy 12.09 regarding attendance expectations and accommodations. Although attendance is not a formal component of the course grade, attendance records could be reported along with course grades.
- Homework: Homework will be assigned for most weeks and will be due one week after assigned. Homework will need to be submitted electronically in CANVAS.
- Homework will be graded based on a scale of 100 points.
 - No late homework will be accepted except some special emergencies.
 - You are encouraged to develop and share ideas for solutions for homework with others in the class; however, your homework submission must be unique and must be your own work. Plagiarism or any form of academic dishonesty will not be tolerated.
- Exams: All exams will be closed book and closed notes, unless otherwise specified.
- Students are expected to be present for all exams. Make-up exams due to an absence will be given only under the following conditions:
 - ◆ The student has informed the instructor of the absence at least 24 hours in advance of missing the exam.
 - OR —
 - ◆ The student misses the exam due to some situation beyond the student's control (such as a serious illness, a death in the family, etc.) which is unexpected, unavoidable, and documented. The reason for each absence of this sort will be judged case by case by the instructor and, if it is deemed valid under the above description, a make-up exam will be given.
 - Midterm-exam problems will be graded correct or incorrect. Partial credit will be awarded only after submission of a partial-credit request after the exam is graded. This process will be outlined in depth that the time of the exam and will include identifying errors in the original solution as well as reworking the problem. This process will help the student understand missed concepts in anticipation of the comprehensive final exam.
- Copyright: All course material—either posted to the course website or distributed in class, or both—is protected by US copyright laws. You may not sell or modify any course material, or reproduce, display, distribute, or otherwise use the material in any way for any public or commercial purpose. In particular, posting of any course material on any other website for any purpose is prohibited.



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Department of Electrical & Computer Engineering

ECE3423 — Circuits I

Fall 2025

SYLLABUS—UNIVERSITY POLICIES

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