ELE 212 – LINEAR CIRCUIT THEORY

Spring 2026

Catalog Description: Kirchhoff's Laws, DC-resistive networks, dependent sources, operational amplifier circuits, natural and forced response of first- and second-order circuits, sinusoidal steady-state response, phasors, AC power.

Prerequisites: ELE 201, PHY 204, credit or concurrent enrollment in MTH 244 or MTH 362, and at least a 2.00 (C) average in MTH 141, MTH 142, PHY 203, and PHY 204.

Schedule: MWF 9:00-9:50 in Kirk Auditorium (lecture), M 2:00-2:50 in Edwards Auditorium (assessment); for snow days we will use zoom (link will be sent before class via email)

Instructor: Prof. Peter F. Swaszek, 492 Fascitelli Center, swaszek@uri.edu
Office hours: M & F 10-11 or by appointment; virtual office hours TBD

Course Text: *Fundamentals of Electric Circuits* by Alexander and Sadiku, McGraw-Hill. Any edition (or even an equivalent text, there are many) is fine.

Needs: A scientific calculator (trig functions necessary, complex numbers and/or matrix operations would be nice) with a good battery.

Course Website: The link https://pswaszek.github.io/ELE212/ provides class materials (day-to-day schedule, pdfs of all class slides, supplementary materials, and links to homeworks). The Brightspace site for the class will be used for email and the gradebook.

Online Homework: Links are provided on the course website; the Homework ID used to login to the problems is NOT your URI ID but is listed in the Brightspace gradebook. Problems are posted for all class periods, due just before the next lecture period. There are also other problems required as review and/or to show other methods. Unless explicitly stated each homework has equal weight. Submissions are graded immediately, with feedback, and the system allows for repeated tries. There will also be two extra credit assignments; however, your HW grade will never exceed the regular homework maximum.

Grading:

	Percent		Comments
Homework (online)	20 %	39 daily assignments; 10 other assignments; total to 5000 points	Submission by stated date for full credit; late submission limited to ½ credit
Quizzes (in class)	80 %	13 during Monday 2 PM meetings; 2 on the final exam day; total to 300 points	Closed book; one page of notes (double sided) allowed; calculator necessary – NO cell phones or tablets or computers

Semester Topics and Quiz Calendar (chapters refer to the 5th edition of Alexander and Sadiku)**:**

Chap.	Concepts
1	Electrical variables
1,2	Simple two terminal devices
2	Kirchhoff's Laws
2	Simple resistive circuits
3	Nodal analysis
5	Operational amplifiers
6	Capacitors and inductors
9	The phasor method
10	Phasor analysis
14	Frequency response
11	AC power
4	Circuit theorems
7	1st order transients
8	2nd order transients
3	Mesh analysis

Quiz #	Date	Topic (tentative)	Points
1	1/26	Basics	10
2	2/2	Basics	10
3	2/9	Basics	20
4	2/18	Node method	20
5	2/23	Node method	20
6	3/2	Node or phasor	20
7	3/9	Phasor	20
8	3/23	Phasor	20
9	3/30	Theorems	20
10	4/6	Theorems	20
11	4/13	Theorems	20
12	4/20	1st order	20
13	4/27	1st order	20
14	5/4	2nd order	20
15	5/4	comprehensive	40

Notices:

Any student with a documented disability is welcome to contact me as early in the semester as possible so that we may arrange reasonable accommodations. As part of this process, please be in touch with Disability Services for Students Office at 330 Memorial Union, 401-874-2098.