

ECEN 2614 - Basics of Electrical Engineering

Fall 2026 Syllabus, Section 01, CRN 41290,

Credit hours: 3

Instructor

Sina Bakhtar Chavari

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Public Instructor Information

Instructor Title: Assistant Professor, Electrical & Computer Engineering

Instructor Professional Qualifications: Dr. Bakhtar Chavari holds a B.S. and M.S. in Electrical Engineering and a Ph.D. in Materials Science & Engineering. His background includes energy-storage, additive manufacturing, electrical systems, laboratory instruction, and mentoring students in engineering disciplines.

Instructor Office Location: Moser 2016

Instructor Office Phone: 330-941-3106

Course Description

2614. Basics of Electrical Engineering. Introduction to electrical circuit elements and laws; DC and AC analysis. Introduction to digital devices and circuits with applications. Applications of electromagnetics. Intended for non-electrical engineering majors. Prereq.: MATH 1571. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required			

TEXTBOOK: Fundamentals of Electric Circuits, 7 th Edition, McGraw-Hill. Older editions or equivalent textbook are acceptable but might not coincide with lectures and in-class examples.

TECHNOLOGY REQUIREMENTS

1. Materials and announcements will be made through Blackboard
2. Microsoft Office Suite or equivalent
3. Engineering calculator

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Mon	8/24	Chapter 1	Understand basic concepts such as charge, current, voltage, power.	
Wed	8/26	Chapter 1	Understand basic concepts such as charge, current, voltage, power.	
Mon	8/31	Chapter 1	Understand basic concepts such as charge, current, voltage, power.	
Wed	9/2	Chapter 1	Understand basic concepts such as charge, current, voltage, power.	
Mon	9/7	No Class		
Wed	9/9	Chapter 2	Understand Ohm's law and Kirchhoff's laws.	Quiz 1
Mon	9/14	Chapter 2	Understand Ohm's law and Kirchhoff's laws.	

Wed	9/16	Chapter 2	Understand Ohm's law and Kirchhoff's laws.	
Mon	9/21	Chapter 6	Understand energy storage elements (capacitors and inductors).	Quiz 2
Wed	9/23	Chapter 6	Understand energy storage elements (capacitors and inductors).	
Mon	9/28	Chapter 6	Understand energy storage elements (capacitors and inductors).	
Wed	9/30	Chapter 6	Understand energy storage elements (capacitors and inductors).	
Mon	10/5	Chapter 7	Understand the behavior of first-order circuits.	Quiz 3
Wed	10/7	Chapter 7	Understand the behavior of first-order circuits.	
Mon	10/12	Chapter 7	Understand the behavior of first-order circuits.	
Wed	10/14		Preparing for Mid-term	
Mon	10/19		Mid-term	Mid-term
Wed	10/21	Chapter 9	Understand how phasors are used to represent sinusoidal functions, and understand the concept of impedance.	
Mon	10/26	Chapter 9	Understand how phasors are used to represent sinusoidal functions, and understand the concept of impedance.	
Wed	10/28	Chapter 9	Understand how phasors are used to represent sinusoidal functions, and understand the concept of impedance.	
Mon	11/2	Chapter 9	Understand how phasors are used to represent sinusoidal functions, and understand the concept of impedance.	
Wed	11/4	Chapter 10	Understand steady-state AC circuit analysis.	Quiz 4
Mon	11/9	Chapter 10	Understand steady-state AC circuit analysis.	
Wed	11/11	No Class		
Mon	11/16	Chapter 10	Understand steady-state AC circuit analysis.	
Wed	11/18	Chapter 11	Understand AC power and how leading and lagging current affect the available power.	Quiz 5
Mon	11/23	Chapter 11	Understand AC power and how leading and lagging current affect the available power.	
Wed	11/25	Chapter 11	Understand AC power and how leading and lagging current affect the available power.	
Mon	11/30	Chapter 13	Understand what a transformer is and its function.	Quiz 6
Wed	12/2	Chapter 13	Understand what a transformer is and its function.	
Mon	12/7	Chapter 13	Understand what a transformer is and its function.	
Wed	12/9		Prepare for final	

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