

ECEN 2632 - Basic Circuit Theory 1

Fall 2026 Syllabus, Section 02, CRN 40729,

Credit hours: 3

Instructor

Vamsi Borra

Public Instructor Information

Ph.D., Electrical Engineering, The University of Toledo, 2017

Master's, Electrical and Computer Engineering, Youngstown State University, 2014

Bachelor's, Electronics and Communication Engineering, Jawaharlal Nehru Technological University, 2011

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Course Description

2632. Basic Circuit Theory 1. Basic principles of linear circuits. Circuits concepts and laws, methods of analysis, network theorems. Source-resistor circuits. Inductors and capacitors. Analysis of AC circuits using phasors; impedance and admittance. Power calculations in DC and AC circuits. Prereq. or Coreq.: ECEN 2611 and MATH 1572 or MATH 1572H. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Fundamentals of Electric Circuits	Alexander and Sadiku	9781260226409 (print version); 8220130704308 (online access)

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

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
8/24	Chapter 1	Charge, voltage, current; active and passive power; energy	
8/31	Chapter 2	Kirchhoff's laws: KVL and KCL	
9/7	Chapter 2	Ohm's law; series and parallel resistive circuits	
9/14	Chapter 3	Node voltage method	
9/21	Chapter 3	Mesh current method	
9/28	Chapter 4	Superposition; Thevenin's theorem	
10/5	Chapter 4	Norton's theorem	
10/12	Chapter 4	Source transformations; maximum power transfer	
10/19	Appendix B, Chapter 9	Complex numbers; phasor representation of AC voltages and currents	
10/26	Chapters 6 and 9	Capacitance and inductance; complex impedance	
11/2	Chapters 9 and 10	Steady-state AC circuit analysis using phasors	

11/9	Chapter 11	Complex power and power factor correction
11/16	Chapters 9, 10, 11	Steady-state AC circuit examples
11/23	Chapter 6	RLC circuits in DC steady state
11/30	Review chapters 1-4, 6, 9-11	Review
12/7		Final exam week

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.