

EE 231 - CIRCUITS I

COURSE HOMEPAGE: <http://coel.ecgf.uakron.edu/durkin/circuits1.htm>

COURSE OBJECTIVE: Introduction to electrical circuit analysis of linear networks, steady-state power, and three-phase systems.

TEXT: Electric Circuits, Alexander and Sadiku, 1st ed., 2000, McGraw Hill.

WEEK	CHAPTERS	TOPICS
1	1, 2	Units and definitions, Circuit elements. Ohm's law and Kirchhoff's laws.
2	2, 3	Series/parallel resistor circuits. Voltage and current division. Nodal analysis.
3	4	Mesh analysis. Superposition.
4	4	Thevenin/Norton theorems. Maximum power transfer.
5		PROBLEM SESSION - EXAM 1
6	6, 9	Inductors/capacitors. Sinusoids. Forced response to sinusoids. Phasors. Impedance.
7	9	Basic phasor analysis of RLC circuits. KCL, KVL, voltage division and current division.
8	10	Phasor mesh/nodal analysis. Phasor diagram.
9	10	Superposition and Thevenin/Norton using phasors.
10		PROBLEM SESSION - EXAM 2
11	11	Instantaneous power. Average and reactive power. The rms value.
12	11	Complex power. Power calculations. Maximum power transfer.
13	12	Balanced three-phase voltage sources. Analysis of the Wye-Wye System. Analysis of the Wye-Delta System.
14	12	Power calculations in balanced three-phase systems.
15		PROBLEM SESSION - EXAM 3

GRADING: Homework - 10%, Tests - 20% each (3 tests), Final - 30%

COURSE POLICIES: No late HW or missed exams, **doctor's excuse needed.**
Exams are closed book and closed notes.