

EET 3700 - Methods in Circuit Analysis

Fall 2026 Syllabus, Section 01, CRN 41340,

Credit hours: 3

Instructor

Daniel Opalewski

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Public Instructor Information

Instructor Title: Dr. or Professor Daniel Opalewski

Instructor Professional Qualifications:

Ph. D., General Engineering, Kennedy Western University, 2005

Post masters, Systems Engineering Post Master Oakland University, 1989-1990

Masters, Masters of Science in Electrical Engineering, Wayne State University, 1988

Bachelors, Bachelor of Science in Electrical Engineering, Lawrence Tech University, 1984

Associates, Electrical Engineering Technology, Macomb County Community College, 1976

Licensed Professional Engineer for state of Michigan, Pennsylvania and Maryland

Licensed Private Pilot, since 1978

Licensed Radio engineer, General Radio Telephone Operator License, Federal Communication Commission., 1986

Instructor Office Location: Moser 4200

Instructor Office Phone: 330-941-3286

Course Description

3700. Methods in Circuit Analysis. Review of circuit analysis techniques using phasor algebra; mesh and nodal analysis; Thevenin and Norton equivalents; superposition theorem; three phase circuits; circuit solutions using matrix methods; and Fourier analysis of periodic waveforms with applications to circuit analysis. Two hours lecture and three hours computational lab per week. Prereq.: Grade of C or better in EET 3710 and EET 3710L and EET 3712 and EET 3712L and EET 3715 and MATH 1570 or MATH 1571. Prereq. or Coreq.: MATH 2670. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Fundamentals of Electric Circuits, 7th ed	Charles K. Alexander, Matthew N.O. Sadiku	978-1-260-22640-9

Or you may get the loose leaf edition...

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

Proposed Textbook Chapters

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Tue	8/25	Basic Concepts, Chpt 1	SI, Charge and Current, Voltage, Power	
Thu	8/27	Computational Lab: Intro MatLab		



Tue	9/1	Basic Laws, Chpt 2	Ohm's Law, Kirchoff's Law, Resistors in series and parallel, current and voltage division, delta Wye
Thu	9/3	Computational Lab: Kirchoff's laws, Voltage and Current Division	
Tue	9/8	Methods of Analysis, Chpt 3	Nodal, Mesh Analysis
Thu	9/10	Computational Lab: Nodal and Mesh Analysis	
Tue	9/15	Circuit Theorems, Chpt 4	Linear Property, Superposition, Source Transformation, Thevenin's Theorem, Norton, Theorem
Thu	9/17	Computational Lab for Circuit Theorems	
Tue	9/22	Quiz 1 review	
Thu	9/24	Quiz 1	
Tue	9/29	Capacitors and Inductors, Chpt 6	Capacitors, Inductors, series and parallel
Thu	10/1	Computational Lab: integrator, Differentiator, Analog Computer	
Tue	10/6	Sinusoids and Phasors, Chpt 9	AC phasors Series and parallel combinations, frequency and time domain
Thu	10/8	Computational lab: Kirchoff's Laws in Frequency Domain	
Tue	10/13	Sinusoidal Steady-State Analysis, Chpt 10	AC, Nodal and Mesh Analysis
Thu	10/15	Computational Lab: Superposition, Thevenin and Norton	
Tue	10/20	Three-Phase Circuits, Chpt 12	Three Phase AC, Nodal and Mesh Analysis, Delta Wye
Thu	10/22	Computational Lab: Balanced Wye-Wye, Wye-Delta, Delta-Delta...	
Tue	10/27	More Three-Phase Circuits, Chpt 12	More example of three phase Analysis
Thu	10/29	Computational Lab: Three-Phase	
Tue	11/3	Quiz 2 Review	
Thu	11/5	Quiz 2	
Tue	11/10	Magnetically Couple Circuits	Mutual Inductance, Linear Transforms Ideal and Auto-transformers
Thu	11/12	Computational Lab: Magnetic circuits	
Tue	11/17	More Three-Phase Circuits, Chpt 12	AC more Three-Phase circuits with MATLAB
Thu	11/19	Computation Lab, MATLAB	
Tue	11/24	More Three-Phase Circuits, Chpt 12	Finish Chapter 12 Three-Phase Circuits
Thu	11/26	holiday	
Tue	12/1	Final Review	
Thu	12/3	Makeup Lab	
Tue	12/8	Final Week	

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