

**MIAMI UNIVERSITY
SCHOOL OF APPLIED SCIENCE
DEPARTMENT OF ENGINEERING TECHNOLOGY**

ENT 193	Circuit Analysis II	3
Course Number	Title	Credit Hours

DESCRIPTION: A detailed study of analog a-c electric networks, including resistive, reactive, and combinational thereof. Analysis techniques include conventional and computerized modeling methodology.

PREREQUISITES: ENT 192, MTH 125

TEXT MATERIAL:

Boylestad, Robert, Introductory Circuit Analysis, eleventh edition, Prentice Hall, Columbus, 2007
Boylestad, Robert L., and Kousaourou, Experiments in Circuit Analysis to Accompany Introductory Circuit Analysis, eleventh edition, Prentice Hall, Columbus, 2007
Calculator: T1-86 or equivalent

COURSE OUTCOMES:

The student will demonstrate knowledge of, and ability to use:

1. Sinusoidal wave properties
2. Complex numbers and phasors
3. Behavior of transformers
4. Steady-state behavior of RC circuits under AC conditions
5. Steady-state behavior of RL circuits under AC conditions
6. Steady-state behavior of RLC circuits under AC conditions
7. Analysis of basic filter circuits
8. AC network theorems such as Superposition, Thevenin's and Norton's theorems
9. Three-phase and/or poly-phase systems
10. Power factor analysis

MEETING PLACE & TIME:

INSTRUCTOR:

Office Hours:

METHOD OF EVALUATION:

Test 1	15%
Midterm Exam	20%
Test 2	15%
Final Exam	20%
Laboratory	20%
Homework	10%

90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, below 60% = F

NOTES:

1. The instructor may make changes as deemed necessary.
2. The order may be changed depending upon students'/instructor's needs.
3. Homework assignments and lab reports are due at the beginning of the next class meeting.
4. Late submissions of assignments will result in a reduced grade.

TOPICAL OUTLINE AND SCHEDULE:

Week	Date	Book Sections & Topics	Homework
1		Chapter 13 Sinusoidal ac Lab 1: ac-2: The Oscilloscope	1,2,3,4,8,10,11,12,15,17, 26,35,43,47
2		Chapter 14.1 - 14.5 Basic Elements Frequency Resp. Lab 2: ac-3 RLC Components	1,3,5,8,14,17
3		Chapter 14.6 - 14.12 Complex math, Phasors Lab 3: ac-4 Frequency Response of R, L, and C Components	31,33,39,40,44,45,48
4		Test 1 Chapter 15.1 - 15.6 Series ac Circuits	1,3,4,5,10,15,25,26,28
5		Lab 4: ac-7: Oscilloscope and Phase Measurements. Excl. Part 3 & Question 2 Ch. 16 Series-Parallel ac Networks	1,3,14
6		Lab 5: ac-10: Series-Parallel Sinusoidal Circuits Ch. 17 Methods of Analysis (ac)	3,5,7,11
7		Ch. 18 Network Theorems (ac) Lab 6: ac-11: Thevenin's Theorem and Maximum Power Transfer (Using TINA)	3,5,7,11,13
8		Mid-term Exam Ch. 19 Power (ac)	3,5,7
9		Ch. 20 Resonance Lab 7: ac-12 Series Resonant Circuits	1,3,5,10,15,21
10		Ch. 21 Decibels, Filters. Evaluation Lab 8: ac-14: Passive Filters Part 1 & 2 only	11,19,21,23
11		Ch. 22 Transformers Lab 9: ac-15: Transformer	3,5,7,9,13,14,21,25
12		Test 2 , Ch. 24 Pulse Waveforms and R-C Response Ch 1 : Introduction to Electronics Communication (<i>Communication Electronics by Frenzel</i>)	1,5,9,11,17,21,25 Handout
13		Lab 10: ac-16: Pulse Waveforms Excl. Probs. Ch. 23 Polyphase Systems	1,5,7,13,18,44,46
14		Ch 2: Amplitude Modulation and Single-Sideband Modulation (<i>Communication Electronics by Frenzel</i>) Lab: Amplitude Modulation I (principle of electronics communication System By David L. Heiserman)	Handout Handout
15		Final Exam	

MIAMI UNIVERSITY LEARNING COMMUNITY:

Miami University is committed to fostering a supportive learning environment for all students irrespective of individual differences in gender, race, national origin, religion, handicapping condition, sexual preference, or age. Students should expect, and help create, a learning environment free from all forms of prejudice. Disparaging comments, sexist or racist humor, or questioning the academic commitment of students based upon these individual differences are behaviors that undermine our learning community. If such behaviors occur in class or lab, please seek the assistance of your instructor or department chair.