

**Wright State University
Department of Electrical Engineering
Course Outline**

EE303 - Circuits Analysis II - Winter Quarter - 2006

Logistics: Lecture: Russ Center 150 9:45 - 10:35 AM Monday/Wednesday/Friday

Text: James W. Nilsson & Susan Riedel, *Electric Circuits*, Seventh Edition, Addison-Wesley, 2005; Laboratory Manual (online under EE Department Course Materials)

Course Objective: This course is intended to develop an understanding of sinusoidal steady state (AC) circuit analysis. Techniques for calculating sinusoidal power consumption will be analyzed. Basic passive low pass, high pass, bandpass, and band reject filters will be studied. Mutual inductance and transformer basics will be covered. Finally, three-phase circuits for power systems will be studied, primarily Y-Y connect generators and loads. See the syllabus of topics to be covered on the back.

Instructor: Dr. Mark Michael; phone: 937-254-8788; 10 AM - 10 PM. E Mail address Mark.Michael@sbcglobal.net

Office Hours: To be arranged.

Exams: Exams are closed book, closed notes, formula sheets with specific equations allowed, given on the dates specified. No make-up exams except for documented emergencies and with the consent of the instructor.

Quizzes: Quizzes are closed-book, formula sheets allowed; expect 3 - 4 to be given. The lowest quiz grade will be dropped. No make-up quizzes.

Homework: Homework will be assigned in class and most will be graded. Each graded problem is 10 points. Late homework will be 10% off for one period late; 20% off for two periods late; 50% off for any times later. Solutions will be on file in the EE Department Office, RC 311, one week after due.

Grading:

Homework	15%
Quizzes	15%
Exam 1	20%
Exam 2	20%
Final	30%

Associated Lab: EE304 Circuits Analysis II Laboratory is to be taken concurrently with or after EE303. If you drop EE303, drop EE304 also. The lab manual is online.

Tentative Course Syllabus

Week	Chapter	Lab	Topic
Week 1	9	None	Sinusoidal steady-state (frequency domain) analysis; use of phasors; passive circuit elements in the frequency domain; Kirchhoff laws;
Week 2	9	1	Steady state analysis; Thevenin & Norton equivalent; node voltage analysis and mesh circuit analysis
Week 3	10	2	Sinusoidal steady state power calculations; instantaneous and average power; RMS calculations; reactive power; power factor improvement; design for max power transfer
Week 4	10, 14	3	1 st Exam (Chapters 9-10) January 27th
Week 5	14	4	Introduction to frequency selective circuits understand frequency response; RC and RL low pass and high pass passive filters
Week 6	14	5	RLC passive bandpass and band reject filters
Week 7	14	6	2 nd Exam (Chapter 14) February 17th
Week 8	6, 9	7	Mutual inductance and transformers including self and mutual inductance linear and ideal transformers
Week 9	11	(8)	Balanced three-phase circuits three-phase voltage and current; analysis of Y - Y and Y - Delta circuits
Week 10	11		Balanced three-phase circuits; power calculations

Final Exam Week - 8:30 - 10:30 AM Wednesday, March 15th, 2006, regular classroom, Russ Center 150

Recommendations: A weak understanding of Circuits I is a major cause of difficulties in this course; it's your responsibility to know Circuits I. Keep up with the class. Ask questions in class if you don't understand or if the material is covered too quickly. Do the homework immediately after it is assigned if at all possible. Be prepared for quizzes - use them to test your understanding. They will generally be given the day homework is due and address some aspect of the homework. Work with other students to review course material, but do your own homework. An advanced calculator such as a TI-86 or TI-89 is desirable (and a great time-saver). It provides the capability to solve equations with complex variables, including sets of simultaneous linear equations. This capability is needed throughout the course. Download the lab manual from the WSU website. Go to the EE Dept. and look for the Online Course Materials button at the bottom of the page on the right; it's under EE304 and is a 26-page PDF file.