

Texas A&M University – Corpus Christi
Dept. of Computing Sciences
Engineering Technology

ENTC 3415 Circuit Analysis II
Fall 2008

COURSE INFORMATION

Prerequisites: MATH 2413 Calculus I, ENTC 2414 Circuit Analysis I, and
ENTC 1203/ENTC1303 Introduction to Engineering Technology
Meeting Time: Lecture: MW 5:00-6:15 p.m. Laboratory: TR 6:30-7:45 p.m.
Meeting Place: ST 221

PROFESSOR INFORMATION

Dr. Ruby Mehrubeoglu (Dr. M.)
Office Address: ST 222B
Office Phone: (361) 825-3378, Fax Number: (361) 825-5848
Office Hours: MW 1:30 – 3:00 p.m., F 9:00 – 11:00 a.m., and by appointment
E-mail Address: Ruby.Mehrubeoglu@tamucc.edu

TEXTBOOKS AND MATERIALS

1. Robert Boylestad, *Introductory Circuit Analysis*, 11th Edition, Prentice Hall, 2007.
2. Robert Boylestad and Gabriel Kousourou, *Experiments in Circuit Analysis*, 10th Edition, Prentice Hall, 2006
3. Other lab assignments and worksheets to be provided

COURSE DESCRIPTION

AC circuit analysis principles: AC generation, periodic functions, complex numbers, phasors, impedance and admittance, network theorems, power, frequency response, filters, transformers, and balanced three-phase systems; and use of analysis software.

STUDENT LEARNING OUTCOMES

At successful completion of this course the student will be able to:

- Use Kirchhoff's Laws for AC circuit analysis.
- Use loop and node analysis techniques to analyze series-parallel AC networks.
- Make AC power computations including three phase power.
- Apply the network theorems (superposition, Thevenin's, Norton's, etc.) to AC circuits.
- Design and analyze simple transformer circuits.
- Use common electrical instruments such as function generators and oscilloscopes.
- Build and test a filter circuit.
- Design and analyze basic household electric wiring circuits.

INSTRUCTIONAL METHODS

Methods and activities for instruction include the following: lectures, group discussion, group work, homework assignments/solutions, lab experiments, and software simulation.

GRADING

In addition to the homework assignments, there will be unannounced quizzes, two midterms, lab experiments, a final exam, and a student notebook which will be turned in before the final exam. The format and contents of the notebook will be explained in class. Tests, except the final, are graded and returned within a week from the date they are taken. You may examine the final exam within four weeks after the final grades are mailed to you. The final grade is computed as follows.

	Percent of Final Grade		If your score is:	Your grade is:
Midterm 1	15		90 or greater	A
Midterm 2	15		80 To 89	B
Prelab + Lab Exercises + Reports	25		70 To 79	C
Homework + Quizzes	15		60 To 69	D
Notebook	5		Less Than 60	F
Final	25			
Total	100			

MAKEUP EXAMINATIONS:

No makeup examinations will be given except in the case of a documented extreme emergency. Makeup exams will be different from the regular exams and hence may be more difficult. There will be no makeup for unannounced quizzes.

SUPPORT SERVICES FOR STUDENTS WITH DISABILITY

Refer to the University Catalog.

ATTENDANCE POLICY

You are advised to attend all lectures and laboratory sessions. If you miss a class, you are responsible for whatever was covered/announced during your absence. You should be aware that unexcused absences will result in points being deducted from your final grade. Each unexcused absence after the first three will decrease your final grade by one point. Potentially you could pass every test and still fail the course due to unexcused absences

ACADEMIC HONESTY

Your attention is called to the University policy in the Student Handbook.

ASSIGNMENTS

Late assignments are not normally accepted. Assignments, however, may be turned in before the due date (they may be left in my mailbox, sent with a classmate, mailed, etc.).

LAB EXPERIMENTS

The goal of the laboratory sessions is to analyze and verify the theoretical ideas learned in the classroom. All experiments must be performed during the scheduled time (the lab is closed at all other times). All theoretical analysis and data calculations must be done before the lab – this makes performing the experiments run much smoother.

LAB REPORTS

Students must submit a written report a week after each experiment is performed. Late reports are not normally accepted. Reports, however, may be turned in before the due date (they may be left in my mailbox, sent with a classmate, mailed, faxed, etc.). Guidelines for the lab reports will be distributed during the second week of the semester.

SUPPLEMENTARY READING LIST

Electric circuits, 4th Ed., Nilsson, Addison Wesley, 1993

Circuits, Bruce Carlson, Brooks/Cole, 2000

Electric Concepts and Applications, Boctor, West Publishing Co., 1997

Basic Engineering Circuit Analysis, 6th Ed., Irwin and Wu, Wiley, 1999

Linear Circuit Analysis, Davis, PWS, 1998

Introductory DC/AC Electronics, Cook, Regents/Prentice Hall, 1993

Principles of Electric Circuits, 4th Ed., Floyd, Merrill, 1993

Principles to Circuit Analysis, Walls and Johnston, West, 1992

TENTATIVE WEEKLY SCHEDULE

WK	Week of	Readings	Topics	Experiment, #	Exams
1	08/25	Ch. 13	Introduction, AC waveforms	Lab Safety, Instruments, 1 (Supplemental materials from instructor)	
2	09/01	Ch. 13	Phase Measurements	RLC Components, 2	
3	09/08	Ch. 14	Phasor Representations	Frequency Response of RLC Components, 3	
4	09/15	Ch. 15	Series circuits	Frequency Response of RL Network, 4	
5	09/22	Ch. 15	Parallel circuits	Frequency Response of RC Network, 5	
6	09/29	Ch. 16	Series & Parallel AC Networks	Phase Measurements, 6	Exam 1
7	10/06	Ch. 17	AC Methods of Analysis	Series Sinusoidal Circuits, 7	
8	10/13	Ch. 18	Network theorems	Series-Parallel Sinusoidal Circuits, 9	
9	10/20	Ch. 19	AC Power	Reactance, Δ -Y Conversions, Thevenin's Thm and Maximum Power Transfer (to be provided by instructor) 6	
10	10/27	Ch. 20	Resonance		Exam 2
11	11/03	Ch. 21	Filters	Resonance, LC Tuned Filters, Tuned Amplifier (to be provided by instructor) 7	
12	11/10	Ch. 21, 23	Frequency Response, Three-Phase Systems	Passive Filters, speaker system 3-way crossover network (to be provided by instructor) 8	
13	11/17	Ch. 23, 25	Three-Phase Systems, Transformers	The Transformer, 14 Bonus Project Intro (DC Power Supply) 9	
14	11/24	Ch. 25	Transformers (cont.),	THANKSGIVING HOLIDAY	
15	12/01	Handouts	Household Wiring	Bonus Project Due	
16	12/08	Handouts	Advanced Topics	Review	
17	Date: Monday, Dec. 15, Time: 4:30 p.m.				FINAL

Please note that the actual dates for the lecture material, lab material and exam 1 and exam 2 may vary from the above schedule.