

**ECE 2110 – Machines and Electronic Circuits
Spring 2010**

CATALOG DESCRIPTION:

Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and transistors. ECE and CPE students may not use credit in ECE 2110 toward graduation. Prerequisites: ECE 2100.

Course Materials:

1. *Fundamentals of Electrical Engineering* by Giorgio Rizzoni, 1st edition, McGraw-Hill, 2009 (Required)
2. *Experiments in Electrical Engineering* by Ralph Tanner, 1st edition, Western Michigan University, 2008 (Required – Available to ECE 2110 students for free on the ECE 2110 web site)
3. **Online homework registration:** Go to <http://www.mharris.com> & press the Student button. On the following screen, enter **D3E-F6-BB4** in the Section Enrollment Code box, which will bring up the ARIS HW registration process for the Fundamentals of Electric Circuits 4th ed. textbook from ECE 2100. You will then be asked to enter your email address, a password and a security question. ARIS for this textbook should be free this semester.
4. **TI-89 calculator (or equivalent)**
5. Digital multimeter (The IEEE student branch sells a digital multimeter at cost. This multimeter is recommended – but any digital multimeter will do.)
6. Permanently bound quadrille, 8-1/2 x 11 laboratory notebook
7. Safety glasses or goggles

INSTRUCTOR: Dr. Ralph Tanner
Office: B233 West Wing – Parkview Campus
Phone: 276-3162
Email: tanner.s10@att.net **Subject:** ECE 2110
Open Office Hours: MF 1:30 – 2:20; T 9:30 – 10:30
Other Office Hours: By appointment.

You never need an appointment during open office hours. Just stop by. No notice required.

I am willing and available to schedule other times with students. However, because others may have already scheduled appointments, this sometimes means a delay between when you may request an appointment and the time I am able to meet with you. Please consider this and try to plan ahead if you need an appointment outside of the open office hours.

EVALUATION:

Exam 1	20%	
Exam 2	20%	
Final Exam	30%	
Assessment	0%	(completion required for course credit)
Lab	20%	
Homework/pop quizzes	<u>10%</u>	
Total	100%	

GRADING SCALE:

92-100	A
87-91	BA
82-86	B
77-81	CB
72-76	C
67-71	DC
62-66	D
0-61	E

OUTLINE: (Tentative)

1. Introduction to Electrical Engineering -----	Ch 1
2. Review of Fundamentals of Electrical Circuits-----	Ch 2
3. Review of Resistive Network Analysis-----	Ch 3
4. Review of AC Network Analysis-----	Ch 4
5. Review of Transient Analysis-----	Ch 5
6. Frequency Response and System Concepts -----	Ch 6
7. AC Power-----	Ch 7
Exam 1	
8. Operational Amplifiers -----	Ch 8
9. Semiconductors and Diodes-----	Ch 9
10. Bipolar Junction Transistors -----	Ch 10
11. Field-Effect Transistors -----	Ch 11
12. Digital Logic Circuits -----	Ch 12
Exam 2	
13. Principles of Electromechanics-----	Ch 13
14. Introduction to Electric Machines-----	Ch 14

PERFORMANCE CRITERIA:

- All exams will be open book and open notes. However, any notes must be in your own handwriting and may not be duplicated copies of someone else's notes. Exams will be a combination of true/false and multiple choice taken on a mark-sense test sheet. Students must bring their own No. 2 pencil to the exam. Students may NOT share books or calculators during the examinations. **Cell phones are not allowed during exams. If I observe you with a cell phone, I will neither confiscate it nor tell you to put it away. Instead, I will document its existence, mark your exam as a failure when I grade it, and refer you to Office of Student Judicial Affairs.**

1. Exam 1. The first exam will be given on Thursday, February 11. There will be a review for Exam 1 on Tuesday, February 9. The first exam will concentrate upon the material from chapters 6 and 7 – however you could expect questions that include concepts from chapters 1 – 5 also. This exam will account for 20% of the grade.
2. Exam 2. The second exam will be given on Thursday, April 1. There will be a review for Exam 2 on Tuesday, March 30. Although the second exam will concentrate on the

material from chapters 8-12, it may also cover some topics from earlier chapters. This exam will account for 20% of the grade.

3. Final Exam. The final exam will be held on Wednesday, April 28, from 8:00 a.m. to 12:00 p.m. The final exam will be comprehensive, covering all materials that were covered for the entire semester. The final exam will account for 30% of the grade.
4. Laboratory: All students must take the laboratory in this class. Your laboratory grade will account for 20% of the grade. You must pass the laboratory to pass the course.
5. Homework/pop quizzes: Homework assignments will be made using McGraw-Hill's Aris system. The site is located at www.mharis.com. The code for this class is **89C-9B-887**. The class is tied to the Alexander text that you used in ECE 2100 – therefore, there is no cost to you to use this site.

Pop quizzes will not be announced and cannot be made up if missed. Pop quizzes are open book unless stated otherwise. However, you may not borrow your neighbor's books, notes, or calculators. The total of all homework and pop quizzes will account for 10% of the grade.

In addition to assigned homework, there are practice problems posted on the Aris system. Although these do not count toward the student's grade, the student will find having worked through these practice problems to be beneficial come exam time.

6. Each student is required to successfully pass two proctored assessment exercises before the end of the semester in order to receive credit for the course. The first assessment is on the topic of transfer functions. The second assessment is on the topic of three-phase circuits. These assessments may be attempted at any time and may be repeated as many times as the student wishes. Although the student must successfully pass these assessments in order to pass the course, the grade from the assessments do not compute into the student's term grade.

Make-up Examinations: If you feel that you have a valid reason to miss an examination, you must validate that reason with appropriate documentation from your doctor, the police, or the funeral home. The make-up examination **WILL BE MORE DIFFICULT** than the original examination.

All your work (including HW) is expected to be your own work. You can work on the assignments in groups but you need to submit your own homework. You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate (pp. 271-272) Catalog that pertain to Academic Integrity. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you **WILL** be referred to the Office of Student Judicial Affairs. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

COURSE COORDINATOR: Dr. Ralph Tanner, ECE Department, 276-3162