The University of Texas at Tyler
Department of Electrical Engineering

Course: EENG 3106 – Electronic Circuit Analysis I Lab
(Required for students entering the electrical engineering program in or after fall, 2002)

Syllabus

Catalog Description:

Circuit applications of operational amplifiers; circuit effects of non-ideal characteristics of operational amplifiers; diode characteristics; diode circuits and applications; transistor biasing (bipolar junction transistors and field effect transistors); low frequency transistor amplifier design.

Prerequisites: EENG 3306 (Co-requisite)

Credits: (0 hours lecture, 1 hour laboratory per week)

Text(s): None

Additional Material: Laboratory procedures (provided on-line)

Course Coordinator: Ron J. Pieper, PhD, PE

Topics Covered: (paragraph of topics separated by semicolons)

Generalized amplifier models and two-port networks; operational amplifier circuits (including non-ideal characteristics); semiconductor diode characteristics; diode rectifier and waveshaping circuits; MOSFET device characteristics; bipolar junction transistor characteristics; the common-emitter amplifier.

Evaluation Methods: (only items in dark print apply):

1. Examinations / Quizzes
2. Homework
3. Report/paper
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Learning Objectives: By the end of this course students will be able to:

1. Calculate and measure the effects on circuit performance of non-ideal electrical characteristics of operational amplifiers.
2. Measure and analyze semiconductor diode V-I characteristics.
3. Design simple rectifier and waveshaping circuits.
4. Measure and analyze the V-I characteristics of enhancement-mode MOS devices.
5. Measure and analyze the V-I characteristics of bipolar junction transistors.
6. Measure the voltage gain, input impedance, and output impedance of a single-stage amplifier and compare these to theoretical values.
7. Use modern engineering tools including modeling and simulation software and virtual instruments.
8. Utilize engineering literature such as technical manuals and product datasheets to

select components to meet experimental or prototype requirements
9. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.

Relationship to Program Outcomes (only items in dark print apply)[1]: This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. have the ability to apply knowledge of the fundamentals of mathematics, science, and engineering;
2. have the ability to use modern engineering tools and techniques in the practice of electrical engineering [7];
3. have the ability to analyze electrical circuits, devices, and systems [1,6];
4. have the ability to design electrical circuits, devices, and systems to meet application requirements [3];
5. have the ability to design and conduct experiments, and analyze and interpret experimental results [2,4,5];
6. have the ability to identify, formulate, and solve problems in the practice of electrical engineering using appropriate theoretical and experimental methods;
7. have effective written, visual, and oral communication skills [9];
8. possess an educational background to understand the global context in which engineering is practiced, including:
   a. knowledge of contemporary issues related to science and engineering;
   b. the impact of engineering on society;
   c. the role of ethics in the practice of engineering;
9. have the ability to contribute effectively as members of multi-disciplinary engineering teams;
10. have a recognition of the need for and ability to pursue continued learning throughout their professional careers [8].

[1] Numbers in brackets [ ] indicate the Course Learning Objectives which support individual Program Outcomes.

Contribution to Meeting Professional Component: (in semester hours)

Mathematics and Basic Sciences:	0	hours
Engineering Sciences and Design:	1	hours
General Education Component:	0	hours

Prepared By:	David M. Beams R. J. Pieper	Date:	8 August 2016 20 August 2018

The University of Texas at Tyler
Department of Electrical Engineering

EENG 3106: Electronic Circuit I Lab
2018 Fall Semester

COURSE OUTLINE

Course Coordinator:	Dr. Ron J. Pieper, Electrical Engineering Office: RBN 1011 Phone: 903-565-7383 E-mail rpieper@uttyler.edu
Class Location/Time:	RBN 2046 Monday 2PM -4:45PM
Office Hours	To be arranged then posted
Text	No text
Prerequisites	EENG 3304, EENG 3104,, CHEM 1311, CHEM1111 , con current registration in EENG 3306
Related subjects	

(Tentative pending assignment) Grading rubric

Expect 3-4 labs
1) Diodes, 2) FETs , 3) BJT , 4) amplifiers
Attendance and report completion nominal 60%
Multi sim simulations nominal 40%

First meeting of lab will be on Monday Sept 10 At scheduled time.

ClassRoom Etiquette

Please remember to turn off cell phones before coming to class. Working on class assignments or surfing the web while class is going on is not acceptable. If these activities are important for you on a particular day it would be better you did them outside the class environment. That being said attendance is important and will taken periodically during the semester. If you know you have an emergency schedule conflict that comes up please inform me (email OK). Although I do not plan to integrate attendance data in with student evaluation it can and will provide additional information if a student is experiencing problems keeping up.

Background on grading and study habits

Typical ranges for grades in this class run as follows, 91-100% A, 80-90% B, 69% to 79% C. The class examples and HW problems provide a basis for gauging you comfort level with the material. The amount of time a student should study can not always be easily quantified due to differences between students. If after reviewing notes, book and HWs if you are having trouble digesting the concept or procedure involved you are highly encouraged to come to an office hour or make an appointment with me.

Academic Integrity:

Students should be aware that absolute academic integrity is expected of every student in all undertakings at The University of Texas at Tyler. Failure to comply can result in strong university-imposed penalties.

Note:

If you have a disability, including a learning disability, for which you request disability support services/accommodation(s), please contact Ida MacDonald in the Disability Support Services office so that the appropriate arrangements may be made. In accordance with federal law, a student requesting disability support services/accommodation(s) must provide appropriate documentation of his/her disability to the Disability Support Services counselor. For more information, call or visit the Student Services Center located in the University Center, Room 282. The telephone number is 566-7079 (TDD 565-5579)." Additional information may also be obtained at the following UT Tyler Web address: http://www.uttyler.edu/disabilityservices.

Grade Replacement Policy:

If you are repeating this course for a grade replacement, you must file an intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to file an intent to use grade forgiveness will result in both the original and repeated grade being used to calculate your overall grape point average. A student will receive grade forgiveness (grade replacement) for only three (undergraduate student) or two (graduate student) course repeats during his/her career at UT Tyler. (2006-08 Catalog, p. 35)