Course Syllabus and Schedule Spring 2020

ECE 3043—Electrical and Analog Electronic Circuits Laboratory

Instructors

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Text

Leach, W. M., Jr., Brewer, T. E., & Robinson, R. A., *Experiments in Electrical and Analog Electronic Circuits (ISBN:978-0-7575-9651-3) (*Required)
The text may be purchased from either bookstore or directly from the publisher Kendall-Hunt.

http://www.kendallhunt.com/store-product.aspx?id=59948

Attendance Policy

Mandatory for all laboratory sessions and expected for recitation. Any absence from an exam or laboratory session will result in a grade of zero which may be made-up at the discretion of the instructor. An absence from a pop-quiz will not be made-up and a grade of zero will be assigned.

Grade Policy

All letter grades assignments are made by the recitation instructor and are based on the ranking in each individual laboratory session. The course grade point average is a random variable for which

$$Probability\ [2.9 < GPA < 3.1] = 0.9.$$

The formula for determining the ranking is as follows:

$$CA = 0.10(LQ) + 0.20(HW) + 0.25(LR) + 0.10(E1) + 0.10(E2) + 0.25(FE)$$

where

CA=Course Average
LQ=Laboratory Quizzes
HW=Homework
LR=Laboratory Reports
E1=Lecture Exam 1 (one hour closed book and note written exam)
E2=Lecture Exam 2 (one hour closed book and note written exam)
FE=Final Exam (one hour closed book and note comprehensive exam).

All assignments are individual assignments; this includes laboratory reports, homework assignments, computer simulations, and exams. There are no laboratory partners.

Pop-quizzes will count as one homework assignment.

All students must participate is all phases of the course. Any student who does not attend the laboratory and perform the experiments or prepare and submit all the assignments in a timely manner is unlikely to pass.

Classroom Behavior

Whilst attending a lecture students are required to pay rapt attention to the lecturer and his/her lecture. This requires that all non-medical devices be turned off such as cell phones, PDAs, cameras, etc. Laptops are permitted only if they are being used to view material directly related to the lecture. Calculators may be used only during quizzes. No inter-student communication is to occur during a lecture; this specifically includes all forms of oral and written communication. Students are, of course, permitted and encouraged to ask pertinent questions to the lecturer. Do not leave the lecture before it concludes or arrive late unless a medical emergency arises. Do not engage in an activity that disrupts the lecture. Students are expected to take copious notes during the lectures given by each instructor.

Whilst attending a laboratory, students are required to perform the experiment. Do not dine, sleep, or socialize in a laboratory. No food or drink of any kind should ever be brought into a laboratory. Do not leave personal possessions at a laboratory station.

Standards of decorum require that all members of the Georgia Tech community are to be addressed by their proper title, e.g. Mr., Miss, Ms., Dr., Professor, Dean, Provost, President, Chancellor, etc.

Spring 2020 SCHEDULE

Week of	Recitation Session (R,F)	Lab Session (T-W-R-F)
January 6	Orientation, Mathcad, Matlab, and SPICE	None
January 13	First-Order Passive Circuits	Exp 1—Orientation, Stand Alone Instruments
January 20	Second-Order Passive Circuits	Exp 2—Basic Measurements
January 27	Basic Op-Amps	Exp 3—First-Order Passive Circuits
February 3	Exam 1 (Week of February 3)	Exp 4—Second-Order Passive Circuits
February 10	Active Op-Amp Filters	Exp 5—Op-Amps I
February 17	Linear Op-Amp Oscillators	Exp 6—Op-Amps II
February 24	Relaxation Op-Amp Oscillators	Exp 7—First-Order Active Op-Amp Filters
March 2	Semiconductor Diodes	Exp 8—Second-Order Active Op-Amp Filters
March 9	Exam 2 (Week of March 11)	Exp 9—Linear Op-Amp Oscillators
March 16	Spring Break	Spring Break
March 23	BJT	Exp 10 —Relaxation Op-Amp Oscillators
March 30	MOSFETs	Exp 11—Semiconductor Diodes
April 6	Review for Final Exam	Exp 12—BJTs
April 13	Final Exam (Week of April 13)	Exp 13—MOSFETs

Exams

Unless otherwise explicitly stated by the course instructor, all exams are closed book and note. Only a standard or programmable calculator may be used. At the beginning of any and all exams all cell phones, PDAs, pagers, etc. must be turned off for the duration of the exam. The only electronic device that may be used in an exam is the before mentioned calculator. Students who require hearing aids or other electronic health aids must alert the instructor prior to the exam. Only pencil, eraser, and calculators are permitted on exams.

Academic Misconduct

All students taking this course are required to strictly adhere to the Georgia Tech Honor Code, whose complete text may be found at

http://osi.gatech.edu/plugins/content/index.php?id=46

or

http://www.honor.gatech.edu/plugins/content/index.php?id=9#appendixA

Any violations of the Code are considered academic misconduct and will be submitted to the Office of the Dean of Students for appropriate action. Several violations of the Code are elaborated upon below.

Do not engage in unauthorized collaboration. All of the assignments in this course are to be completed individually; there are no laboratory partners. Each assignment – laboratory reports, homework problems, exams – must reflect only the efforts of the student whose name appears on the assignment. Students may, of course, discuss assignments in general terms with one another, but all work should be generated individually. Likewise, students may receive assistance on assignments from the course instructors, or lab instructors. However, students are expected to write their own reports and do their own work. Copying or allowing peers to copy all or portions of any assignment is considered plagiarism (see below) and is expressly forbidden; an engineer is a creative thinker and not a scribe.

Do not plagiarize. Georgia Tech and the School of ECE define plagiarism as "Submission of material that is wholly or substantially identical to that created or published by another person or persons, without credit notations indicating authorship" (Section XVII. C. Academic Misconduct, General Catalog). Plagiarism constitutes a serious violation of the Honor Code and will be reported immediately to the Dean of Students.

Do not copy—even the smallest portion—of another student's report.

Do not attempt to falsify data and/or experimental results, or to secretly alter a paper after submission.

Do not attempt to forge the signature of someone else.

Do not confer or consult with any other lab student about any portion of an assignment.

Do not engage in disruptive behavior or hooliganism, which includes, but is not limited to, the abuse and/or theft of Institute equipment and/or littering.

Policies for Students Repeating the Course

Students who are repeating the course must perform all of the assignments anew. This includes all laboratory reports, homework problems, etc. Material from a previous semester is unacceptable. Attempts to alter dates or names on assignments will result in a charge of Academic Misconduct. This course must be taken simultaneously with ECE 3040.

Policies for Homework

All assignments are individual assignments. Each homework assignment must have a cover sheet with the course number, section number, section day and time, and a bitmap photo of the student. Each homework problem that involves the use of computer software such as National Instruments SPICE (Multisim) and/or Mathcad must be digitally signed by pasting a bitmap photo of the student onto the solution. Any unsigned homework will be assigned a grade of zero. All SPICE plots must have the time/date stamp on the printout or it will be assigned a grade of zero.

Policy for Late Assignments

Assignment turned in late but within two days of the due will be penalized 10%. Within a week 20%. No assignments will be accepted after one week of the due date. Exceptions may be made if there is an official excuse from the Dean of Students. Job interviews, vacations, visiting relatives, attending conferences, etc. are not valid excuses for class absenses or submitting late assignments.

Background Requirements

Prerequisite: ECE 2040

Materials Required

Lab Manual–one per student
    Proto-Board or Breadboard–one per student
    ECE 3043 Parts or Chip Set
    Calculator
    One USB Memory Stick
    These materials must be brought to each lab session.