

Course Syllabus

EE 2403

Fall, 2014

T-Th 8:00 – 9:20 am

NH, Room 202

Instructor: Prof. Jonathan Bredow

Office: Room 522 Nedderman Hall

Office Hours: T,Th 9:30-10:00am and early during lab times, otherwise by appointment.

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Course WWW site: <https://elearn.uta.edu/>

Required Textbook(s): Microelectronic Circuits, A. Sedra and K. Smith, 6th ed., Oxford University Press, 2010.

Reference Materials: See materials provided on Blackboard.

Course Description: Analysis and design of electronic circuits. Review of DC biasing, small-signal frequency response, differential and operational amplifier design and applications, IC terminal behaviors.

Course Learning Goals/Objectives: Refer to Table 1 at the end of the syllabus

ABET Outcomes coverage in the course: Refer to Table 2 at the end of the syllabus

Attendance Policy:

Drop Policy:

As per University guidelines. See the Registrar's Bulletin or the University Calendar for drop dates.

Tentative Lecture/Topic Schedule (Course Content) and Specific Course Requirements w/Descriptions:

Grade Computation:	Exam I, Exam II	each 20%
	Lab	25%*
	Homeworks, projects, quizzes	15%
	Final Exam	20%

*Note students must achieve passing score on the lab component to pass the class.

Policies: Late homeworks, projects and not showing for exams is inexcuseable with-out approval of instructor prior to due date or exam date.

(See lab schedule below)

Aug. 21	Introduction/Signals and Amplifiers (Chpt. 1)
" 26	" " " "
" 28	" " " "
Sep. 2	Operational Amplifiers (Chpt. 2)
" 4	" " " "
" 9	" " " "
" 11	Semiconductors (Chpt. 3)
" 16	" " " "
" 18	" " " "
" 23	" " " "
" 25	" " " "
" 30	Exam I
Oct. 2	Diodes (Chpt. 4)
" 7	" " " "
" 9	" " " "
" 14	" " " "
" 16	MOS Field-Effect Transistors (Chpt. 5)
" 21	" " " "
" 23	" " " "
" 28	" " " "
" 30	Exam II
Nov. 4	Bipolar Junction Transistors (Chpt. 6)
" 6	" " " " "
" 11	" " " " "
" 13	Selected topics on ICs
" 18	" " " "
" 20	" " " "
" 25	" " " "
" 27	Thanksgiving holiday
Dec. 2	Culmination
" 4	" " " "

Final Exam: Tuesday Dec 9 8:00 - 10:30 am

Lab Schedule (tentative)

<u>Week beginning with Monday</u>	<u>Topic</u>
August 25	Lab orientation/introduction
September 1	Op amps
September 8	Op amps and terminal characteristics
September 15	IC Applications/projects
September 22	IC Applications/projects
September 29	Diodes and applications
October 6	Diodes and applications
October 13	MOSFETs and applications
October 20	MOSFETs and applications
October 27	BJTs and applications
November 3	Project work
November 10	Project work
November 17	Project work
November 24	TBD
December 1	TBD

If you require an accommodation based on disability, I would like to meet with you in the privacy of my office, during the first week of the semester, to make sure you are properly accommodated.

Student Evaluation of Teaching

Students will be asked to complete instructor/course evaluation forms at the end of the semester.

Americans with Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112—The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act – (ADA), pursuant to section 504 of The Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide **“reasonable accommodation”** to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with **informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.**

Academic Dishonesty

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22).

ANY CHEATING WILL RESULT IN SEVERE PENALTIES.

Table 1: Statements of Course Objectives

Student is expected to demonstrate:	ABET Outcome mapping
Ability to design using op amps for a variety of applications.	a, c, k
Understanding of basic physics of semiconductor devices.	a, e
Ability to analyze and measure terminal electrical characteristics of small signal devices.	c, k
Ability to analyze and properly bias electronic circuits.	a, e, k
Understanding of low frequency small-signal circuit modeling and analysis.	c, e
Ability to design and construct simple and few-stage transistor amplifiers to achieve specifications on gain and input/output impedance.	c, k
Demonstrate ability to extend knowledge and skills gained in the course to somewhat more complex and varied circuits.	c, k
Working knowledge of Spice for linear transistor circuit analysis.	e, k
Clarity in written communication to explain approaches and results, and to compare with expected results.	g

Table 2: Coverage of ABET outcomes

ABET Outcome	Primary course component	Weight
(a) an ability to apply knowledge of mathematics, science, and engineering	Exams, Homeworks, Projects	High
(b) an ability to design and construct experiments, as well as to analyze and interpret data	Lab	Moderate
(c) an ability to design system, component, or process to meet desired needs	Exams, Homeworks, Projects, Labs	High
(d) an ability to function on multidisciplinary teams	Lab	Low
(e) an ability to identify, formulate, and solve engineering problems;	Exams, Homeworks, Projects, Labs	High
(f) an understanding of professional and ethical responsibility	Not addressed	Not addressed
(g) an ability to communicate effectively	Projects, Labs	Moderate for written communication
(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context	Not addressed	Not addressed
(i) a recognition of the need for, and an ability to engage in lifelong learning	Projects	Low
(j) a knowledge of contemporary issues	Not addressed	Not addressed
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	Projects, Labs	High
(l) an ability to apply probability and statistics, including applications appropriate to electrical engineering	Exams, Homeworks	Low