Instructor: Prof. Jonathan Bredow

Office: Room 522 Nedderman Hall

Office Hours: Immediately after class and dates/times TBD

Phone: 817-272-3497

Mailbox: Room 549 Nedderman Hall

Email: jbredow@uta.edu

Instructor WWW site: www-ee.uta.edu

Course WWW site: www-ee.uta.edu


Reference Materials:
- Stanley Burns and Paul Bond, Principles of Electronic Circuits, 2nd ed.

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

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 in the front part of the UTA catalog 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%
- Homework problems 5%
- 2 miniprojects @ total of 10%
- Final Exam 20%

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

(See lab schedule below)
Aug 26  Introduction/review
  " 28  Review of large signal behavior and biasing (4.1-4.5, 5.1-5.3)
Sep  2  Review of small-signal mid-frequency amp analysis (4.6, 4.7, 4.8, 5.4, 5.5, 5.6)
  "  4  Current source biasing (Chpt. 7)
  "  9  Differential amplifiers (Chpt. 7)
  " 11  "  "  "  "
  " 16  Frequency response (Chpt. 8)
  " 18  "  "  "  "
  " 23  "  "  "  "
  " 25  "  "  "  "
  " 30  Feedback and oscillators (Chpt. 9)
Oct  2  Exam I
  "  7  Feedback and oscillators (Chpt. 9)
  "  9  "  "  "  "
  " 14  "  "  "  "
  " 16  Output stages and power supplies (Chpt. 10)
  " 21  "  "  "  "
  " 23  "  "  "  "
  " 28  "  "  "  "
  " 30  "  "  "  "
Nov  4  Basic op amp ICs (additional material)
  "  6  Exam II
  " 11  "  "  "  "
  " 13  "  "  "  "
  " 18  Active filters and tuned circuits (Chpt. 11)
  " 20  "  "  "  "
  " 25  Waveshaping circuits and data converters
  " 27  Thanksgiving Holiday
Dec  2  Waveshaping circuits and data converters
  "  4  "  "  "  "

Final Exam: Thursday December 11  8:00am - 10:30 am

Lab Schedule (tentative)
Week beginning with Monday Topic
August  25  No Lab
September  1  Orientation/Small signal characteristics of BJT amplifiers
September  8  FET amplifiers and multistage amplifiers
September 15  Frequency limitations of small signal amplifiers
September 22  Differential amplifiers
September 29  Frequency limitations of op amps
October  6  Feedback in multistage amplifiers
October 13  Oscillators
October 20  Mid-Term Quiz
October 27  Power amplifiers
November  3  Linear voltage regulators
November 10  Switching voltage regulators
November 17  Active Filters
November 24  No Lab
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**

<table>
<thead>
<tr>
<th>Student is expected to demonstrate:</th>
<th>ABET Outcome mapping</th>
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<tbody>
<tr>
<td>ability to design and analyze voltage- and current-source biasing circuits for transistor amplifiers</td>
<td>a, c</td>
</tr>
<tr>
<td>ability to develop small signal models for linear semiconductor circuits</td>
<td>e</td>
</tr>
<tr>
<td>ability to analyze small signal behaviors of transistor amplifier circuits at low frequencies and high frequencies</td>
<td>a</td>
</tr>
<tr>
<td>ability to differentiate and analyze four basic configurations of feedback for transistor circuits, including stability considerations</td>
<td>a, e</td>
</tr>
<tr>
<td>ability to design basic transistor amplifier circuits and simple op amp circuits, e.g., amplifiers, active filters, threshold circuits, and precision rectifiers</td>
<td>c</td>
</tr>
<tr>
<td>knowledge of basic classes of power amplifiers (PA), and how PA biasing and operation differs from that for linear Class A, i.e., small-signal amplifiers.</td>
<td>e</td>
</tr>
<tr>
<td>working knowledge of Spice for linear transistor circuit analysis</td>
<td>k</td>
</tr>
<tr>
<td>proper techniques in measurement of amplifier input and output impedance, and voltage and current gain.</td>
<td>k</td>
</tr>
<tr>
<td>clarity in written communication to explain approaches and results, and to compare with expected results.</td>
<td>g</td>
</tr>
<tr>
<td>ABET Outcome</td>
<td>Primary course component</td>
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<tr>
<td>(a) an ability to apply knowledge of mathematics, science, and engineering</td>
<td>Exam, Miniprojects</td>
</tr>
<tr>
<td>(b) an ability to design and construct experiments, as well as to analyze and interpret data</td>
<td>Lab</td>
</tr>
<tr>
<td>(c) an ability to design system, component, or process to meet desired needs</td>
<td>Exams, Miniprojects</td>
</tr>
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<td>(d) an ability to function on multidisciplinary teams</td>
<td>Lab</td>
</tr>
<tr>
<td>(e) an ability to identify, formulate, and solve engineering problems;</td>
<td>Exams, Miniprojects, Labs</td>
</tr>
<tr>
<td>(f) an understanding of professional and ethical responsibility</td>
<td>Not addressed</td>
</tr>
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<td>(g) an ability to communicate effectively</td>
<td>Miniprojects</td>
</tr>
<tr>
<td>(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context</td>
<td>Not addressed</td>
</tr>
<tr>
<td>(i) a recognition of the need for, and an ability to engage in lifelong learning</td>
<td>Miniprojects</td>
</tr>
<tr>
<td>(j) a knowledge of contemporary issues</td>
<td>Not addressed</td>
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<tr>
<td>(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice</td>
<td>Miniprojects, Labs</td>
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