ECEN 620: Network Theory: Broadband Circuit Design

Fall 2012
MWF 10:20-11:10, ETB 1003
http://www.ece.tamu.edu/~spalermo/ecen620.html

Instructor: Sam Palermo
Office: 315-E WERC
Office Hours: MW 3:00-4:30
Phone: 458-4114
E-mail: spalermo@ece.tamu.edu

Pre/Co-requisite: ECEN 474

Textbook: Class Notes and Technical Papers

References:

Class Notes:
- Posted on the web and will hand out hard copies in class

Objectives: At the end of this course, students be able to
1. Understand broadband circuit design methodologies and key principles
2. Understand phase-locked loop system design for applications such as frequency synthesis and clock recovery.
3. Understand the design specifications and implementation details of phase-locked loops and clock and data recovery systems.
4. Understand the design specifications and implementation details of broadband amplifiers, such as limiting, transimpedance, and variable-gain amplifiers.
5. Understand the design specifications and implementation details of high-speed digital logic, both CMOS and CML logic styles.

Grading:
- Exams 60%
  o Three Midterm Exams (20% each), No Final Exam
  o Closed book
  o One double sided 8.5x11 note sheet allowed
  o No make-up exams except for university excused absences
- Homework 20%
  o You are encouraged to work together with your colleagues on the homework. However, each student must turn in an independent write-up.
  o No late assignments will be graded
- Final Project 20%
  o Report and PowerPoint presentation required
Grading Policy*:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>x = Your Average</th>
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<tbody>
<tr>
<td>A</td>
<td>x ≥ 90.00</td>
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<tr>
<td>B</td>
<td>89.99 ≥ x ≥ 80.00</td>
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<tr>
<td>C</td>
<td>79.99 ≥ x ≥ 70.00</td>
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<td>D</td>
<td>69.99 ≥ x ≥ 60.00</td>
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<tr>
<td>F</td>
<td>59.99 ≥ x</td>
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*This is the lowest grade that you are guaranteed for your raw average, x. Depending on the relative performance of the class, your grade MAY be adjusted higher.

Outline & Preliminary Schedule*

<table>
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<tr>
<th>Topic</th>
<th>Week</th>
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<tr>
<td>I. Introduction and Linear Systems</td>
<td>Week 1-4</td>
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<td>II. PLL System Analysis</td>
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<tr>
<td>1st Exam</td>
<td>Oct. 3</td>
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<td>III. PLL Building Blocks</td>
<td>Week 5-9</td>
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<td>IV. CDRs</td>
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<td>2nd Exam</td>
<td>Nov. 5</td>
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<tr>
<td>V. Broadband Amplifiers</td>
<td>Week 10-14</td>
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<td>VI. High-Speed Logic</td>
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<td>3rd Exam</td>
<td>Nov. 28</td>
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<td>Project Report Due</td>
<td>Dec. 4</td>
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<tr>
<td>Project Presentation</td>
<td>Dec. 11</td>
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*Exam dates are approximate and subject to change with reasonable notice.

Americans with Disabilities Act (ADA)
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

Academic Integrity
For additional information please visit: http://www.tamu.edu/aggiehonor

"An Aggie does not lie, cheat, or steal, or tolerate those who do."

Attendance Policy
“The University views class attendance as the responsibility of an individual student. Attendance is essential to complete the course successfully. University rules related to excused and unexcused absences are located on-line at http://student-rules.tamu.edu/rule07."

Build the Hell Outta Broadband Circuits!