ECEN 620: Network Theory: Broadband Circuit Design

Fall 2019
Local Sections: TR 11:10AM-12:25PM, ETB 1035
Distance Learning: Lecture video will be posted online TR at ~4:00PM
http://www.ece.tamu.edu/~spalermo/ecen620.html
Instructor: Sam Palermo
Office: 315-E WERC
Office Hours: TR 9:00AM-10:30AM
Phone: 979-458-4114
E-mail: spalermo@tamu.edu

Pre/Co-requisite: ECEN 474/704

Textbook: Class Notes and Technical Papers

References:

Class Notes:
- Posted on the web

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.

Grading:
- **Exams** 50%
  - Two Midterm Exams (25% each), No Final Exam
  - Closed book
  - One double sided 8.5x11 note sheet allowed
  - No make-up exams except for university excused absences
- **Homework** 25%
  - You are encouraged to work together with your colleagues on the homework. However, each student must turn in an independent write-up.
  - No late assignments will be graded
- **Final Project** 25%
  - Report and PowerPoint presentation required
Grading Policy*:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>x = Your Average</th>
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<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 1-8</td>
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<td>II. PLL System Analysis</td>
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<td>III. PLL Building Blocks</td>
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<td>1st Exam</td>
<td>Oct 15</td>
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<td>IV. CDRs</td>
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<td>V. Broadband Amplifiers</td>
<td>Week 9-14</td>
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<td>VI. Other Topics</td>
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<td>2nd Exam</td>
<td>Nov. 28</td>
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<td>Project Report Due</td>
<td>Dec. 3</td>
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<tr>
<td>Project Presentation</td>
<td>Dec. 6 (3:00PM – 5:00PM)</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!