

# ECEN-325: ELECTRONICS

*“An aggie does not lie, cheat, steal, or tolerate those who do”*

Spring 2008

TH 12:45-14:00

Zachry: Zachry 103

<http://amesp02.tamu.edu/~jsilva>

Instructor: Jose Silva-Martinez, (jsilva@ee.tamu.edu), (amesp02.tamu.edu/~jsilva/)

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Office Hours: **Tuesday 15:00 – 18:00, Thursday 15:00 – 18:00 (any other time/day if available)**

Textbook: **Class Notes**, Jose Silva-Martinez, available at <http://amesp02.tamu.edu/~jsilva>.

Optional: Microelectronic Circuits, fifth edition, by Adel Sedra and Kenneth Smith, Oxford University Press, 2004 (most recent edition).

Objectives: To be able to plot complex transfer functions using bode approximation and be able to develop small signal (linear) models for soft non-linear circuits. To study circuits based on operational amplifiers, bipolar devices and MOS field effect transistors. To be able to recognize the importance and roll of dc and ac signals on the amplifiers. To analyze, design, simulate basic configurations of electronic circuits. To get practical experience on the use of these devices and topologies; students will build some circuits in the lab and use the SPICE simulator to verify functionally and robustness of the design.

Grading:

Exams 60 % **(3 midterms, 20% each; no final)**

Homeworks 15 %

Laboratory (regular labs) 20 %

Laboratory Project 5 % **(Report and power point presentation are required)**

**Grading policy: No Curving!**

**A ≥ 88**

**88 > B ≥ 75**

**75 > C ≥ 62**

**62 > D ≥ 50**

**Closed book exams but 1 cheating page is allowed**

**Late home works will NOT be accepted**

**Late lab reports will NOT be accepted**

## Outline and preliminary Schedule

Topic	Week
I. Introduction to Electronics	Week 1
II. Circuit analysis and bode plots	Week 1-2
III. Operational amplifiers and circuit analysis	Week 2-4
<b>Review session: 30 mins.</b>	<b>February 19</b>
<b>1<sup>st</sup> MIDTERM</b>	<b>February 21</b>
IV. Diode and Bipolar device models	Week 5-6
V. Concepts on input and output impedances and transmission gain.	Week 6-7
VI. Basic and multi-stage amplifiers	Week 7-8
<b>Review session: 30 mins.</b>	<b>March 25</b>
<b>2<sup>nd</sup> MIDTERM</b>	<b>March 27</b>
VII. Field-effect (MOS) transistors	Week 9
VIII. Basic and Multistage Amplifiers	Week 10-11
IX. Differential Amplifiers	Week 12
<b>Review session: 30 mins.</b>	<b>April 22</b>
<b>3<sup>rd</sup> MIDTERM</b>	<b>April 24</b>
<b>Project Report</b>	<b>April 29</b>
<b>Project presentations</b>	<b>Day of final examination</b>

**Good Luck and enjoy the course!**