

EE6416
Low-Noise Electronics
FALL 2010

Instructor: Dr. W. Marshall Leach, Jr., Van Leer E388, 404-894-2963 (Secretary: 404-894-2973),
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Class Web Page: users.ece.gatech.edu/~mleach/ece6416/

Time: MW 3:05 – 3:55 p.m., Van Leer C340

Office Hours: Tuesday 3:30 – 4:30 p.m. and Friday 2:30 – 3:30 p.m.

Pertinent Dates:

Holidays	September 6, November 25 – 26
Fall Recess	October 16 – 19
Drop Day	October 15
Quiz 1	Monday, October 4
Quiz 2	Monday, November 15
Final Exam	Monday, December 13, 2:50 p.m. – 5:40 p.m.

Textbook: *Low-Noise Electronic System Design*, Motchenbacher & Connelly, Wiley Interscience
and notes posted on the class web page.

Material: Selected material from Chapters 1 – 3, 5 – 10, and 12 – 15

This course is an introduction to the area of low-noise electronic design. It presents an overview of noise fundamentals, a description of noise models for passive devices and active devices, methods of calculating the noise performance of circuits, and techniques for minimizing noise in circuit design.

Grading:

Each Quiz:	20%
Laboratory Performance:	20%
Homework:	15%
Final Exam:	25%

Course Topics:

- Noise Mechanisms and Sources
- Amplifier Noise
- Noise in Sensors
- Noise in Transistors
- Low-Noise Design
- Cascaded Stages and Feedback Circuit Design
- Low-Noise Amplifier Designs
- Noise Measurements

Laboratory: The laboratory part of the course is handled by Dr. Tom Brewer. Practical design problems and laboratory exercises are assigned which reinforce classroom concepts. Designs will be tested in the laboratory to enable you to learn and evaluate low-noise design techniques. Dr. Brewer will contact the class by email concerning laboratory meeting times. The lab meets in the Low Noise & Communications Laboratory in the center hall of the third floor of Van Leer.

Classroom Decorum Please be considerate of the other students in the class. Arrive for class and be seated before the bell. If you must enter or leave the classroom during the lecture, do not let the door slam. Do not talk in class. Turn your cell phones and pagers off before class begins. Do not use a cell phone in class. School policies prohibit the consumption of food and beverages in the classroom.

Special Note I find it difficult to concentrate on my lecture if students are talking in the classroom. If you need to talk, please leave the classroom. Otherwise, I will start giving pop quizzes.

Plagiarism Plagiarism is considered academic misconduct. Plagiarizing is defined by Webster's dictionary as to steal and pass off the ideas or words of another as one's own, to use another's production without crediting the source, to commit literary theft, to present as new and original an idea or product derived from an existing source. If caught plagiarizing, you will be dealt with by the Dean of Students according to the GT Academic Honor Code.

Homework Collaboration When working on homework, two students may work together and submit a single assignment. In special circumstances, three students will be allowed to work together and submit a single assignment. Include the following on the cover page: your name, the names of the students, the course number, and the assignment number. You are allowed and encouraged to ask me questions, although you should try to think about the problems before asking. I will not work problems for you if you do not submit evidence that you have made a prior attempt to work them. You are strongly encouraged to work on extra problems on your own.

Lab Project Collaboration On the lab projects, two students may work together and submit a single report. In special circumstances, three students will be allowed to work together and submit a single report.

Cheating on Quizzes Cheating off of another person's test or quiz is unethical and unacceptable. Cheating off of anyone else's work is a direct violation of the GT Academic Honor Code, and you will be dealt with by the Dean of Students according to the GT Academic Honor Code.

Use of Old Quizzes Use of any previous semester course materials as study guides is allowed. While this material may serve as examples for you, they are not guidelines for any tests, quizzes, homework, projects, or any other course work that may be assigned during this semester.

Academic Honor Code Issues For any questions involving these or any other Academic Honor Code issues, please consult me, the class GTA, or at www.honor.gatech.edu.