

**ECE4435**  
**Operational Amplifier Design**  
SPRING 2009

**Instructor** Dr. W. Marshall Leach, Jr., Van Leer E388, 404-894-2963, (Secretary: 404-894-2973),  
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**Class Web Page** <http://users.ece.gatech.edu/~mleach/ece4435/>

**Time and Location** MW 1:05 pm – 1:55 pm, Van Leer C340.

**Office Hours** Tu 3:30 pm – 4:30 pm, F 12:30 pm – 1:30 pm

**Textbook** *Design with Operational Amplifiers and Analog Integrated Circuits*, 3rd ed., by Sergio Franco, and notes posted to the class web page.

**Material** Selected parts of Chapters 1 – 6, 9, and 10.

**Course Objectives** To introduce the properties of ideal and practical operational amplifiers. To study the characteristics of the op amp without feedback. To introduce the analysis and design of op amp feedback networks which produce both linear and nonlinear transfer characteristics. To study the design of op-amp amplifiers, integrators, differentiators, active filters, logarithmic amplifiers, and active clipping networks. To study op-amp waveform generator circuits such as sine-wave, triangle-wave, and square-wave generators. Design and analysis capabilities will include circuit models of op amps and the utilization of SPICE to simulate circuit performance.

**Quizzes**

Quiz 1    Monday, February 16  
Quiz 2    Monday, April 6

**Grading**

Quizzes in Total	40%
Homework	10%
Laboratory Performance	25%
Final Exam	25%

**Pertinent Dates**

Holiday	Monday, January 19
Spring Break	March 16 – 20
Drop Day	Friday, February 27
Quiz 1	Monday, February 11
Quiz 2	Monday, April 1
Final Exam	Wednesday, April 29, 2:50 pm – 5:40 pm

## Recommended Books in the Library

TK7871.58.06 B37 – A. Barna, *Operational Amplifiers*, New York: John Wiley, 1971.

TK7871.58.06 063 – J. G. Graeme, et. al., eds., *Operational Amplifiers: Design and Application*, New York: McGraw-Hill, 1971.

TK7874.M527 – J. Millman, *Microelectronics*, New York: McGraw-Hill, 1979.

TK7872.F5 H5 – J. L. Hilburn and D. E. Johnson, *Manual of Active Filter Design*, New York: McGraw-Hill, 1973.

TK7871.58.06 576 – D. Stout and M. Kaufman, *Handbook of Operational Amplifier Circuit Design*, New York: McGraw-Hill, 1976.

TK454.2 .D27 – G. Daryanani, *Principles of Active Network Synthesis and Design*, New York: John Wiley, 1976.

TK7871.58.06 G7 – J. G. Graeme, *Applications of Operational Amplifiers*, New York: McGraw-Hill, 1973.

TK7872.F5 I65 – D. E. Johnson, et. al., *A Handbook of Active Filters*, Englewood Cliffs: Prentice Hall, 1980.

TK7872.F5 B53 – M. Biey and A. Premoli, *Tables for Active Filter Design*, Dedham, Mass.: Artech House, 1985.

TK7872.F5 W54 – A. B. Williams, *Active Filter Design*, Dedham, Mass.: Artech House, 1975.

**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, you may work with other students in the class. However; you must turn in separate copies of the homework with the following written on the cover page: your name, the names of everyone you collaborated with, the course number, and the assignment number. You are allowed and encouraged to ask me and the class GTA questions, although you should try to think about the problems before asking. Neither I nor the GTA will work problems for you if you do not submit evidence that you have made a prior attempt to work it. You are strongly encouraged to work on extra problems from the book on your own.

**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 the url <http://www.honor.gatech.edu>.