EEE5364-0001(23273) - Fund Data Converters

EEL 5934: Fundamentals of Data Converters   *Nima Maghari*

Course Description

 This course explores fundamentals of data converter systems and circuits. Most of the commonly used ADC and DAC architectures such as flash, two-step, pipelined, algorithmic, successive-approximation, R-2R DACs and other widely used structures are discussed in great details. The effects of circuit non-idealities are analyzed and various system and circuit techniques will be discussed to enhance the performance of these converters. Circuit design techniques, layout issues and other practical limitations of analog IC design will be also discussed in this course.

The course objective is to provide a thorough background of data converter systems and circuits, discuss the real world applications, IC design challenges and prepares students for other areas of analog and digital IC design.

Class Schedule: This Class is offered Remotely (Online and offline setting). More will be discussed.

Monday 9:35am-10:30am

Wednesday 9:35am-10:30am

Location: OInline

Meeting info:

https://ufl.zoom.us/j/98990404911?pwd=UHhzbU9UcklNTit6Tkx5RGhvQU5adz09

Meeting ID: 989 9040 4911
Passcode: 060222

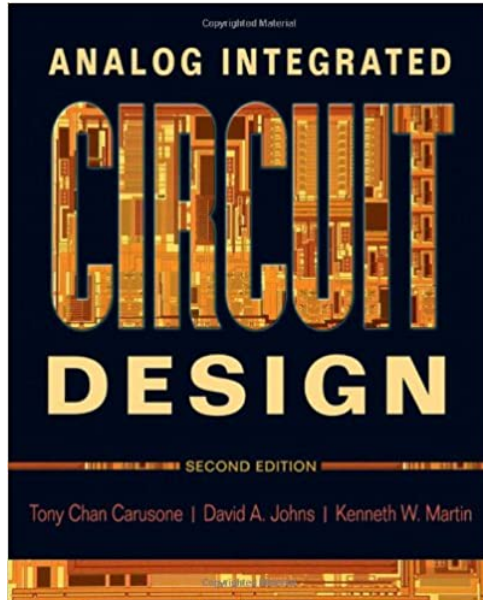 **Pre-requisite:**

 EEE 5320   Analog IC Design I

or equivalent knowledge of this topic (see the instructor)

 Textbooks(not required)

                                        Analog Integrated Circuit Design (2nd edition) (highly recommended)

By Tony Chan Carusone, David Johns and Kenneth Martin

Publisher: Wiley; 2 edition (December 13, 2011)

· **ISBN-10:** 0470770104

· **ISBN-13:** 978-0470770108

Hardcover: 816 pages

Software

Matlab R8 and above

Cadence (if you do not know Cadence, please contact me ASAP)

What you should know

Analog IC Design (Opamps, frequency response, settling, slew rate …)

Basic Probability and stochastic signals (WSS, Gaussian, PDF, PSD ..)

Frequency Response (bode plot, pole-zero)

Analog Layout Basics (LVS/DRC)

Exams:

TBA

Grading basis

Homework   20% (5-6 series)

Mini Projects   15%

Midterms   35%

Project   35%   (total 105%, 5% extra)