ECE7821 Hierarchical Design, Capture, and Verification of Mixed Signal Systems.

Objectives :
1. Learn the advanced principles of combining analog, RF, and digital simulation strategies for design and verification of mixed signal systems.

2. Develop capabilities in using modern CAD tools for complete system design – initial specifications to build descriptions.

Instructor: Steven B. Bibyk http://www.eleceng.ohio-state.edu/~bibyk CL381

Texts (supplied): Mixed Signal System Journal papers, CAD tool and system language manuals, embedded system platform manuals, mixed signal component tutorials.

Weekly schedule:

1. Introduction, overview of mixed signal system design flow, analog & RF design flow, course plan.

2. Mixed Signal System Descriptions and Simulations.
Compare System Simulation Strategies in Matlab, SystemVue, HDLs, "Spice", other CAD tools.

3. Analog & Mixed Signal Hardware Description Language (HDL-AMS) Behavioral Descriptions: Statements, Operators, and Events in Verilog and Verilog-A

4. System Architectures
PLL
Data Converters
Trusted Embedded Systems

5. Project Formation.

6. Top down design with bottom up verification flows.

7. Detail Examples:
Amplifiers, PLLs, FPGAs, Data Converters,
Reconfigureable Hardware, RF Conversion, Analog Filters,

8. Mixed Signal Testbenches – Analog & RF verification vs. Digital verification.

9. Mixed Language Simulations.

10. Project Presentations, Course Review

Grading:
Midterm 25% Project - 50% Homework - 25%