ECE 60420   Radio Frequency Integrated Circuits, Fall 2019

Areas: VLSI and Circuit Design (VC)
               Microelectronic and Nanotechnology (M&N)

Prerequisite: EE 455 or equivalent

Text: The Design of CMOS Radio Frequency Integrated Circuit (Tom Lee), 2nd edition, Cambridge Press
               + Required and Recommended Papers available on Blackboard
               + Instructor's on-line notes available on Blackboard

               Recommended textbooks:
               Analysis and Design of Analog Integrated Circuits (Gray, Hurst, Lewis, Meyer) 5th edition, Wiley
               Microwave Engineering (Pozar), 2nd edition, Wiley
               Multi-GHz frequency Synthesis & Divisions (Rategh, Lee), Kluwer Academic
               Architecture for RF Frequency Synthesizer (Vaucher), Kluwer Academic
               RF Power Amplifiers for Wireless Communications (Cripps) 2nd edition, Artech House

Schedule: Lecture hours: Tuesdays and Thursdays 4:30-5:45 pm in EE 226
               Office hours: to be announced

Instructor: Professor Saeed Mohammadi, Office 2264 Birck Nanotechnology Center, Phone 494-3557, email:
               saeedm@purdue.edu, Office Hours: to be announced

Schedule:

Week 1:	Lee's Chapters 1,2, 19 (RF front-end)
Week 2:	Lee's Chapters 3, 4, 5 (active/passive devices)
Week 3:	Lee's Chapters 6, 7 (distributed elements, S-parameters and Smith Chart)
Week 4:	Lee's Chapter 11 (Noise)
Week 5:	(Linearity)
Week 6:	Lee's Chapter 9 (Narrowband and wideband amplifier designs)
Week 7:	Midterm 1 (first 6 weeks)
Week 8	Lee's Chapter 12 (Low Noise Amplifiers)
Week 9:	Lee's Chapter 13 (Mixers), Phase 1 project presentation
Week 10-11:	Lee's Chapter 15 (Power amplifiers) + selected material from Cripps book
Week 12-13:	Lee's Chapter 16, 17, 18 (Oscillators, Synthesizers and Phase Noise)
Week 14:	Midterm 2 (2nd 6 weeks)
Week 15:	Phase 2 Project presentations
Week 16:	Course summary and conclusion / Final exam (all material)

Simulation: Cadence Spectre

Grading: Homework: (6 assignments – Late HWs are not accepted)   15%
               Exams: 2 midterms and 1 final[*]   45%
               Project: (Parts 1 and 2)[$]   40%

               Note: No make up exam will be scheduled. An A-4 sheet of formula is allowed for midterm and final
               exams. [$]To pass the course, you must have passing grade from theoretical (exams) and simulation
               (project) parts. [$]Possible grades are A+, A, A-, B, C, D and F.

> In the event of a major campus emergency, course requirements, deadlines, and grading
> percentages are subject to changes that may be necessitated by a revised semester
> calendar or other circumstances.
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> Here are ways to get information about changes in this course:
>
> email: saeedm@purdue.edu   or check Blackboard Vista website