

COURSE SYLLABUS

EE221 RF Integrated Circuit Design

Fall 2025
Dept. of Electrical and Computer Engineering
University of California, Riverside

Instructor:	Prof. Albert Wang	Office:	417 WCH
Phone:	(951) 827-2555	Email:	aw@ece.ucr.edu
Office Hours:	Tuesday 1-3pm	Web:	http://www.ece.ucr.edu/~aw
TA:	None		

Course Objective:	Essentials of RF CMOS integrated circuit analysis and design
Lecture	T/R, 9:30am-10:50am; Materials Sci&Engr, Room 003
Group Discussion	T, 11:00-11:50am; Chung Hall, Room 141
Prerequisites:	EE100A/B, Senior & Graduate standing and Instructor Permit
Text:	<i>The Design of CMOS RF Integrated Circuits</i> , Thomas Lee, 2 nd Ed. 2004, Cambridge University Press, ISBN: 9780521835398.
Other References:	<ul style="list-style-type: none"> • <i>Analysis and Design of Analog Integrated Circuits</i>, Gray, Hurst, Lewis & Meyer, 4th Ed., 2001, Wiley, ISBN: 0-471-32168-0 • Other reference materials to be provided.
Exam:	Exam 1 on 11/6 & Exam 2 on 12/2
Project:	Course Design Project + in-class presentation
Grades:	Exam: 50% + HW: 5% + Project: 45%

Topical Outlines & Schedule (Subject to modification upon progresses)

Weeks	Date	Lecture Contents
1	9/25	Passive/active IC devices,
2	9/30 & 10/2	Passive RLC network,
3	10/7&9	Distributed systems,
4	10/14&16	Smith chart,
5	10/21&23	Bandwidth estimation,
6	10/28&30	RF amplifier design,
7	11/4&6	Project assignment on 10/30 Voltage reference & biasing,
8	11/11&13	Exam 1 on 11/6 Noise, LNA design,
9	11/18&20	No class 11/11 Mixers,
10	11/25&27	RF power amplifiers,
11	12/2&4	No class 11/27 Feedback systems,
12	12/8-12	Exam 2 on 12/2; Presentation 12/4 Phase-locked loop, Oscillator, Synthesizer, etc.
		Final week