

ECE 453 FALL 2022
Wireless Communication Systems

Instructor

José Schutt-Ainé - 5042 ECEB (jesa@illinois.edu)

Class Time

9 am-9:50 am, MWF, ECEB 3013 & ONLINE

Lab Time

AB1: Tuesday 9:00 – 11:50 am

AB2: Tuesday 2:30 – 5:20 pm

AB3: Thursday –9:00 – 11:50 am

Teaching Assistant

Juhitha Konduru (juhitha2@illinois.edu)

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Textbook

Steven J. Franke, *Wireless Communication Systems*, Class Notes.

Course Web Page

The course web page is at <http://courses.engr.illinois.edu/ece453>. This is the primary means of staff-student communication outside of lecture hours.

Grading Policy

Homework	15% of total
Midterm Exams	30% of total
Lab	25% of total
Final Exam	30% of total

Homework Policy

Homework will be due on Fridays. Homework must be uploaded on the course web site by 5 pm at the drop box. Late homework will not be accepted. Homework solutions will be posted on the class web page on the day after the due date.

Office Hours

Wednesdays, 3-4PM - [ONLINE](#).

Questions regarding labs or homework should be posted on [Piazza](#).

Midterm Exams

Midterm Exam 1: Monday, October 3, 9:00 – 9:50 am

Midterm Exam 2: Friday, November 4, 9:00 – 9:50 am

Final Exam

Monday, December 12, 8:00–11:00 AM

Syllabus for ECE 453 Fall 2022 (Prof. Jose Schutt-Aine)

Lec.	Day	Date	Topic	HW	Labs
1	M	8/22/22	Fourier Analysis		0
2	W	8/24/22	Modulation Theorem		
3	F	8/26/22	DSB Modulation and Demodulation		
4	M	8/29/22	Nonlinear Modulation		
5	W	8/31/22	Quadrature Modulation/Demodulation		
6	F	9/2/22	Regenerative Receivers		
	M	9/5/22	LABOR DAY - NO CLASS		
7	W	9/7/22	Superheterodyne Receivers		
8	F	9/9/22	AM Broadcasting	1	
9	M	9/12/22	FM Broadcasting		1
10	W	9/14/22	Up- and down-conversion		
11	F	9/16/22	Software Defined Radio	2	
12	M	9/19/22	Resonance		2
13	W	9/21/22	Quality Factor Q		
14	F	9/23/22	Oscillator Analysis	3	
15	M	9/26/22	Colpitt, Crystal, Voltage Controlled Oscillators		2
16	W	9/28/22	Oscillator Phase Noise		
17	F	9/30/22	Network Power Transfer	4	
	M	10/3/22	Exam 1		3
18	W	10/5/22	Lossless Matching Networks		
19	F	10/7/22	Impedance Matching with Lossless L-Networks	5	
20	M	10/10/22	Three-element matching networks		4
21	W	10/12/22	Pi and T matching networks		
22	F	10/14/22	Y, Z, H, ABCD Parameters	6	
23	M	10/17/22	S Parameters		5
24	W	10/19/22	Application of S parameters		
25	F	10/21/22	Stability Analysis	7	
26	M	10/24/22	Unconditional stability		5
27	W	10/26/22	Simultaneous Conjugate Match	8	
28	F	10/28/22	LTI networks		
29	M	10/31/22	Properties of LTI Networks		6
30	W	11/2/22	1-Port Noise Characterization	9	
	F	11/4/22	Exam 2		
31	M	11/7/22	2-Port Noise Characterization		7
32	W	11/9/22	Noise Factor and Noise Figure	10	
33	F	11/11/22	Mixers		
34	M	11/14/22	Conversion Loss in Mixers		8
35	W	11/16/22	Two-tone input	11	
36	F	11/18/22	Modeling Nonlinearities		
	M	11/21/22	Thanksgiving Week – NO CLASS		
	W	11/23/22	Thanksgiving Week – NO CLASS		
	F	11/25/22	Thanksgiving Week – NO CLASS		
37	M	11/28/22	Phase-Locked Loops		9
38	W	11/30/22	Transient Response of PLL's	12	
39	F	12/2/22	FM Demodulation		
40	M	12/5/22	Frequency Synthesis with PLL's		
41	W	12/7/22	Phase Detectors		
	M	12/12/22	Final Exam		