ECE 453 FALL 2021

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 am
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 compass 2G by Friday at 5pm. 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
Due to COVID, there will be no in-person office hours.
Questions regarding labs or homework should be posted on Piazza.

Midterm Exams
Midterm Exam 1: Monday, October 4, 9:00 – 9:50 am
Midterm Exam 2: Friday, November 5, 9:00 – 9:50 am

Final Exam
Thursday, December 16, 1:30–4:30 PM

Syllabus for ECE 453 Fall 2021 (Prof. Jose Schutt-Aine)

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