ECE 453 FALL 2025

Wireless Communication Systems

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

Class Time
9 am-9:50 am, MWF, ECEB 3013

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
Tahsin Shameem (shameem2@illinois.edu)
Bobby Sommers (sommers7@illinois.edu)

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 Canvas by 11:59 pm. 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, 4-5PM - ONLINE.
Questions regarding labs or homework should be posted on Piazza.

Midterm Exams
Midterm Exam 1: Monday, October 6, 9:00 – 9:50 am
Midterm Exam 3: Friday, November 7, 9:00 – 9:50 am

Final Exam
Monday, December 15, 8:00–11:00 AM

Syllabus for ECE 453 Fall 2024 (Prof. Jose Schutt-Aine)

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