

ECE 451 SPRING 2025

Section	Time	Instructor	Room
X	12:00 MW	J. Schutt-Aine	3015 ECEB

Instructor

Jose Schutt-Aine, 5042 ECEB, jesa@illinois.edu

Book

M. Steer, *Microwave and RF Design*, 2nd Edition, SciTech Publishing, 2013.

Notes

Lab notes can be downloaded from course web site at: <http://emlab.illinois.edu/ece451/labs.html>

Class notes can be downloaded from course web site at: <http://emlab.illinois.edu/ece451/notes>

Grading Policy

Lab	35% of total
Homework	20% of total
Midterm	10% of total
Lab Final	15% of total
Final	20% of total

Lab Reports Policy

Instructions for preparing and returning lab reports will be given and are described in the Introduction for the Laboratory Notes.

Homework

Homework assignments will be given throughout the semester. Assignments will be passed on a Wednesday and will be due two weeks later and should be uploaded into Canvas.

Midterm Exam

Monday, March 10, 12:00 – 12:50 pm, 3015 ECEB

Laboratory Instructors (Lab 5076 ECEB)

Yi Zhou - yizhou18@illinois.edu

Gabriel Muniz - gam5@illinois.edu

Course Web Site

<http://emlab.illinois.edu/ece451>

ECE 451 SCHEDULE: SPRING 2025

Lec	Mo	Date	Topic	Ch	Lab(Tuesday & Thursday)
	JAN	W-22	NO CLASS		
1		M-27	RF Detection	5	
		W-29	NO CLASS		
2		F-31	Transmission Lines	5	
3	FEB	M-3	Smith Chart	6	Lab 1 – Detection of RF Power - Benchview
4		W-5	Applications of Smith Chart	5	
5		F-7	Waveguides	6	
6		M-10	Scattering Parameters	9	Lab 2 – Slotted line
7		W-12	Scattering Parameters of TL	9	
8		F-14	Flow Graph	10	
9		M-17	Error Models		Lab 3 – Automated Scalar Reflectometry
		W-19	NO CLASS		
10		M-24	Time-Domain Reflectometry		Lab 4 – Network Analyzer Error Correction
11		W-26	TRL Calibration Method		
12		F-28	Application of TRL		
13	MAR	M-3	TL Characterization		Lab 5 – PNA and TDR
14		W-5	Frequency Dependence of TL		
		M-10	MIDTERM EXAM		Lab 6 – Extraction of TL Parameters
		W-12	NO CLASS		
		M-17	SPRING BREAK		
		W-19	SPRING BREAK		
15		M-24	Requirements of Channels		Lab 7 – Wafer Tests and Eye Diagrams
16		W-26	Eye Diagram Measurements		
17		M-31	Macro-Modeling		Lab 8 – TRL Calibration
	APR	W-2	Circuit Synthesis		
18		M-7	Linear Amplifiers	19	Lab 9 – Advanced Techniques
19		W-9	Power Amplifiers		
20		M-14	X-Parameters		Lab 10 – Amplifier Measurements
21		W-16	X- Parameters		
22	APR	M-21	X-Parameters		Lab 11 – Generating X Parameters via Simulation
23		W-23	Gain Compression		
24		M-28	Signal Integrity		Lab 12 – Measuring X Parameters
25		W-30	Signal Integrity		
26	MAY	M-5	Packaging		
		W-7	FINAL EXAM		