

## ECE 546 SPRING 2018

### **Instructor**

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

### **Class Time**

12:30 -1:50 pm, TR, 3017 ECEB

### **Textbooks - Required**

W. J. Dally and J. W. Poulton, "Digital Systems Engineering", Cambridge University Press, 1998

### **Textbooks - Recommended**

1. S. Hall and H. Heck, Advanced Signal Integrity for High-Speed Digital Designs. IEEE-J. Wiley, 2009
2. Kyung Suk (Dan) Oh and Xingchao (Chuck) Yuan, High-Speed Signaling: Jitter Modeling, Analysis, and Budgeting, Prentice Hall, 2012.
3. Madhavan Swaminathan and Ege Engin, Power Integrity Modeling and Design for Semiconductor and Systems, Prentice Hall, 2007.

### **Grading Policy**

Homework	60% of total
Project	30% of total
Participation	10% of total

### **Homework Policy**

Problems are assigned every Thursday and are due the following Thursday at the end of the class period. Homework is to be the student's own work, not a collaborative or plagiarized work. However, students are permitted and encouraged to help one another by engaging in discussion of course material and approaches to solving the homework problems. Homework solutions will be posted on the course web-page.

### **Teaching Assistant**

Da Wei ([dawei1@illinois.edu](mailto:dawei1@illinois.edu))

### **WWW Home Page**

The course internet home page can be found at <http://emlab.illinois.edu/ece546>

### **Office Hours**

José Schutt-Ainé - Wednesday 3-4 pm - Room 5042 ECEB

## ECE 546 SCHEDULE: SPRING 2018

Lect	Date	Topic	Book	HW
1	<b>JAN</b>	Th-16	Introduction	notes
2		Tu-23	Review of Electromagnetics	notes
3		Th-25	Parallel-Plate Waveguides	notes
4		Tu-30	Resistance, Capacitance, Inductance	Ch 1 & 2
5	<b>FEB</b>	Th-1	Ideal Transmission Lines	Ch 3
6		Tu-6	Coupled-Line Analysis	notes
7		Th-8	Multiconductor Transmission Lines	notes
8		Tu-13	Nonideal Conductors and Dielectrics	notes
9		Th-15	Lossy Transmission Lines	notes
10		Tu-20	MOS Transistors	Ch 4
11		Th-22	MOS Amplifiers	notes
12		Tu-27	Integrated Circuits	notes
13	<b>MAR</b>	Th-1	Scattering Parameters	notes
14		Tu-6	Macromodeling	notes
15		Th-8	Circuit Synthesis from Macromodels	notes
16		Tu-13	MNA and SPICE	notes
17		Th-15	Latency Insertion Method	notes
		<b>Tu-20</b>	<b>SPRING BREAK</b>	
18		Tu-27	IBIS Modeling	notes
19		Th-29	X Parameters	notes
20	<b>APR</b>	Tu-3	Power Distribution Networks	Ch 5
21		Th-5	Noise in Digital Circuits	Ch 6
22		Tu-10	Timing and Signaling	notes
23		Th-12	Jitter Basics	notes
24		<b>Tu-17</b>	<b>Lecture from Cadence</b>	<b>notes</b>
25		<b>Th-19</b>	<b>Lecture from Cadence</b>	<b>notes</b>
26		Tu-24	High-Speed Links	notes
27		<b>Th-26</b>	<b>Lecture from Intel</b>	<b>notes</b>
28	<b>MAY</b>	Tu-1	High-Speed Links	Ch 7
		<b>Th- 10</b>	<b>FINAL PROJECTS DUE</b>	