

ELEC 4520 Integrated Circuit Fabrication Technology Spring 2022

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Laboratory*/Tutorial					Lecture	
Week	lab #	Date	Content	Venue	Date	Content
1					04-Feb	Course introduction, cleanness, cleanroom
2		07-Feb	No lab		11-Feb	Cleanroom, standard cleaning
3		14-Feb	No lab		18-Feb	Process integration of a simple NMOS
4	Tut1	21-Feb	Crystal structure and Miller index	zoom	25-Feb	Silicon wafer
5	lab1	28-Feb	Virtual lab tour, safety, standard cleaning	zoom	04-Mar	Oxidation
6	lab2	07-Mar	LOCOS formation I: wafer preparation, pad oxide formation	zoom	11-Mar	Chemical vapor deposition
7	lab3	14-Mar	LOCOS formation II: pad oxide characterization and nitride mask deposition	zoom	18-Mar	Lithography I
8	lab4	21-Mar	LOCOS formation III: nitride characterization; review of previous contents	zoom	25-Mar	Lithography II
9	lab5	28-Mar	LOCOS formation IV: active region lithography	zoom	01-Apr	Etching
10	lab6	04-Apr	LOCOS formation V: nitride etching	zoom	08-Apr	Doping
11	lab8	11-Apr	LOCOS formation VI: field oxide formation, characterization	zoom	15-Apr	Easter Holiday
12		18-Apr	Easter Holiday		22-Apr	Metallization
13	lab9	25-Apr	Formation of the active region of NMOS	zoom	29-Apr	Back-End-Of-Line
14	lab10	05-May	Real lab tour	NFF	06-May	Process integration of CMOS

*Restricted by the COVID-19 pandemic, most labs in this semester were conducted online.

Reference List:

- [1] S. M. Sze, M. K. LEE, Fundamentals of semiconductor fabrication, Wiley, 2003.
- [2] James D. Plummer, Michael Deal and Peter B. Griffin, Silicon VLSI technology: fundamentals, practice and modeling, Prentice Hall, 2000.
- [3] Stephen A. Campbell, Fabrication Engineering at the Micro- and Nanoscale, Oxford University Press, 2008, 3rd ed.
- [4] S. M. Sze and K. K. Ng, Semiconductor devices: physics and technology, Wiley, 2006, 3rd ed.

Grading Policy:

30% in-lecture quizzes + 30% lab reports + 40% final exam