THE UNIVERSITY OF TEXAS AT DALLAS
ERIK JONSSON SCHOOL OF ENGINEERING & COMPUTER SCIENCE

EE 4330:	**Integrated Circuit Technology** (3 semester hours)
Class Info:	TR 1:00PM-2:15PM, ECSS 2.312, Spring 2013
Instructor:	Professor Wenchuang (Walter) Hu
Telephone:	(972) 883-6329
Email:	walter.hu@utdallas.edu
Website:	WebCT or e-Learning
Office Hours:	By appointment in NSERL 2.710
Textbook:	“Introduction to Microelectronic Fabrication”, Richard C. Jaeger, Prentice Hall, 2002.
	ISBN: 0-201-44494-1
References:	“Silicon VLSI Technology” Plummer, J., M. Deal, P. Griffin. Prentice Hall, 2000.

Course Outline:
This course will teach you about the fundamental science and technologies of integrated circuits (IC) fabrication, which include MOS and bipolar technologies, photolithography, oxidation, diffusion, ion-implantation, epitaxial growth, thin and thick film components, and design and layout of integrated devices. Modern IC technologies will be introduced briefly, which include finFET technology, nanoelectronics, and 3D packaging. In addition, an on-site visit to Texas Instrument IC fabrication facility (R-Fab or DMOS 6) will be arranged. Prerequisites: EE 3310 or EE 3300.

Course grading:

0%	Regularly Assigned Homework (practice only)
10%	In-class quiz
25%	Midterm Exam 1
25%	Midterm Exam 2
40%	Final Exam

Course rules and regulation:
1. No eating, drinking, or smoking in classroom. No laptop computer use in classroom.
2. Students who miss the Midterm Exams or Final Exam without a valid excuse will receive a score of zero. Students with a valid excuse for missing the Test or Final Exam MUST make arrangements beforehand or receive a score of zero.

Homework: Homework will be assigned on Monday or Wednesday after the class and is due in the week. Each student must turn in individual work. All assigned work will be collected at the beginning of the class. Late homework assignments will not be accepted, unless arrangements were made beforehand.

EE4330: Integrated Circuit Technology

Lecture	Topic	Reading
1/15	Overview	
1/17	Video: Silicon Run v2	§1
1/22	CMOS fabrication process flow	
1/24	Roadmap and Issues of IC fab	§2
1/29	Lithography I	
1/31	Lithography II	§3
2/5	Etching	
2/7	Oxidation I	§4
2/12	Oxidation II	
2/14	Diffusion I	§5
2/19	**Midterm Exam 1**	
2/21	Diffusion II	
2/26	Diffusion III	
2/28	Review & Exercise	§6
3/02	Implantation I	
3/05	Implantation II	§7
3/07	Film Deposition I	
3/19	Film Deposition II	§8
3/21	Contacts and Interconnections	
3/26	Packaging and Yield	§9
3/28	**Midterm Exam 2**	
4/02	MOS Process Integration I	
4/04	MOS Process Integration II	
4/09	***Visit Texas Instrument IC Facility***	§10
4/11	MOS Process Integration III	
4/16	BJT Integration I	
4/18	BJT Integration II	
4/23	BJT Integration II	
4/25	FinFETs and Nanoelectronics	
4/30	3D packaging and MEMs	
5/02	Class Review and Exercise	
5/09	**Final Exam, 11am-1:45pm, ECSS 2.312**	