EEE 5322
Credits: 3

VLSI Circuits and Technology
Fall 2008

Sections: 1554

Class Website	https://elearning.courses.ufl.edu/webct/logon/2263335580061
Pre-requisites	EEL 4310
Course Objectives	To provide an overview of micro-electronic fabrication. To develop a basic understanding of CMOS integrated circuit design. To develop proficiency in analysis, design and implementation of CMOS circuits
Instructor	Dr. Rizwan Bashirullah 527 NEB rizwan@ufl.edu
Office Hours	MW 2:50 - 3:50pm
Time and Location	Meeting time: MWF 1:55-2:45 Location: NEB 201
Administrative Assistant	Marcus Moore, 567 NEB (352) 392-8422, marcus@cnel.ufl.edu
Teaching Assistant	Deepak Bhatia, deepak85@ufl.edu TBA (2nd TA) Office location: TBA Office hours: TBA
Required Textbook	Richard C. Jaeger, "Introduction to Microelectronic Fabrication," 2nd Edition, Modular Series on Solid State Devices, Volume 5, Prentice Hall, ISDN 0-201-44494-7, 2002 Jan. M. Rabaey, A. Chandrakasan, and B. Nikolic, "Digital Integrated Circuits, A Design Perspective," 2nd Edition, Prentice Hall, 2003. ISBN 0-13-090996-3 In addition, handouts developed by instructor may be downloaded from class www site
Recommended Textbook	Neil H.E. Weste, David Harris, "CMOS VLSI Design, A Circuits and Systems Perspective," 3rd Edition, Pearson, Addison-Wesley, 2005. ISBN 0-321-14901-7 (used for EEL6323)

Computer/soft. requirements

Workstations with CADENCE Design system.

Course Topics

- CMOS IC overview
- Micro-electronic Fabrication
- Ion implantation, diffusion, film deposition, photo-lithography, CMP, cleaning, etching
- CMOS Flow, Yield, Isolation, Latch-up
- Design Rules
- MOS theory, parasitics, resistance, capacitance
- CMOS Inverter
- Interconnects
- Noise
- Combinational logic, compound gates, TG, Pseudo NMOS, Pass Transistor Logic
- Dynamic Circuits
- Flip-flops
- Memory
- Testing of CMOS

Grading policy

This is a tentative grading policy.

Problem sets (5-6): 20%
Exams (3): 20% each
Final Project (1): 20%

Typical grading scale:
A > 90; 85 < B+ < 90; 80 < B < 85; 75 < C+ < 80; 70 < C < 75; D+, D, E < 70

Note: Curves may be used if necessary. If used, the overall class average will approximately determine the C+-B breakpoint. The A range will start approximately one standard deviation above this point (but not higher than 90%).
It is expected that students will attend all lectures on-time. Furthermore, it is expected that attendees will take every possible measure to minimize distractions for everyone.

Academic Honesty

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action.

This statement is a reminder to uphold your obligation as a student at the University of Florida and to be honest in all work submitted and exams taken in this class and all others.

Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary

damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student with disability

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide documentation to the instructor when requesting accommodation.

UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
- SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.