ECE 658 - DR. D. MISRA

Course Outline

VLSI Design - I


More Resources on the Text


REF: Amar Mukherjee; Introduction to nMOS & VLSI System Design; Prentice-Hall, 1986

REQUIREMENTS

1. The assignments and projects will be done by using the OSL system using Linux Workstations. You can obtain an account in this system immediately after you register for this course.

2. You can access the OSL system in GITC-Room 2400.

WEEK TOPIC(TEXT)
1. Introduction, MOS Transistor History, Introduction-Circuit Forms & Methodologies
   VLSI Lab (Sec. 1.1-1.3, 1.4, 1.5)
2. Device Current Expressions (2.1-2.3, Notes)
3. CMOS Transfer Characteristics, MOS Circuit Applications and Inverter, Transmission Gates Noise Margin (2.4, 2.5)
4. VLSI Technology, Design Rules, Latchup, (3.1, 3.2, 3.4, 3.5)
5. Delay & Timing (Ch. 4)
6. Power, Interconnect: Capacitance and Resistance (Ch5 & Ch 6) & Midterm Exam
7. Spice Simulation, HSPICE hspice modelfiles
8. Combinational Circuits (Ch. 9)
9. VLSI Lab
10. Circuit Techniques & Design Methodology (Symbolic Layout) 5.2,5.3, 5.4
11. Clocks and Communication (Symbolic Layout) (Notes) (5.5)
12. I/O Structures (5.6), Super Buffers & Gate Protection
13. Memory Systems (8.3), Finite State Machines (8.4)
14. CMOS Design Methods (8.4)
15. Final Examination

Honor Code: The NJIT Honor Code will be upheld, and any violations will be brought to the immediate attention of the Dean of Students.

GRADING POLICY:
2 Pop Quizzes ................ 10%
Assignments ................ 10%
Project ....................... 20%
1 Midterm .................... 30% (October 16, 14)
Final Exam ................... 30%

Total ................................ 100%

Office Hours: Thursday 4:00-5:00 PM & WED 11:00AM-12:00PM, OR with appointment. Rm. 339 ECEC, Ext. 5739
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