

ECEn 451. Introduction to Digital VLSI Circuits

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| Catalog Description: | ECEn 451. Introduction to Digital VLSI Circuits. (4:3:5) W Design of very large-scale integrated circuits for digital systems. CAD tools used extensively to simulate the design and create and verify mask circuits. | |
| Course Type: | Engineering Topics | |
| Prerequisites: | ECEn 313, 320 | |
| Textbooks and/or other required materials | Weste & Harris, <i>CMOS VLSI Design: A Circuits and Systems Perspective</i> , 3 rd edition | |
| Topics Covered: | <ol style="list-style-type: none"> 1. CMOS device characteristics 2. Creating and analyzing functionality of CMOS circuits 3. Transistor sizing and logical effort 4. CMOS layout 5. Floorplanning; place and route 6. Characterization and timing analysis 7. Noise 8. Power 9. Scaling | |
| Course Competencies: | Ability to analyze CMOS circuits. | Outcome 1 |
| | Ability to use eCAD tools for CMOS design. | Outcome 11 |
| | Ability to translate digital logic to CMOS circuits to achieve desired behavior and performance requirements. | Outcome 3 |
| | Ability to perform CMOS layout. | Outcome 3 |
| | Ability to characterize timing and noise in CMOS circuits. | Outcome 2 |
| Schedule: | Lectures: MWF 3:00-3:50 Laboratory: N/A TA Recitations: Th 3:00-3:50 | |
| Prepared by: | David A. Penry | |
| Date: | June 24, 2008 | |