

# ELE 448 Digital Integrated Circuit Design I Laboratory

## Syllabus Spring 2018

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**Lab:** W 02:00 - 04:45 Schneider 200I (Linux Workstations)

**Credits:** 1 Credit.

**Pre-requisite:** ELE 338, ELE339, PH204, ELE212, ELE215 and concurrent enrollment in ELE 447, Digital Integrated Circuit Design I Lecture.

**Text:** D. A. Hodges, H. G. Jackson, R. A. Saleh, *Analysis and Design of Integrated Circuits*, 3<sup>rd</sup> edition, McGraw-Hill, 2004. ISBN 0-07-228365-3.  
  
A. J. Davis, *Introduction to Integrated Circuit Design, Layout & Simulation*, Laboratory Manual, 2004.

Lab	Title	Tool	Dates
1.	Introduction to Schematic Capture & Hspice Verification	Virtuoso Schematic, Sym. ADE & Spectre	31 Jan
2.	Ring Oscillators	""	7 Feb.
3.	Introduction to Layout	Virtuoso Layout Editor DRC & LVS Checker	14 Feb., 21 Feb.
4.	D-Latches, Xor	""	28 Feb
5.	D-FF's and T-FF's	""	7 Mar.
5.	4b ctr	""	21 Mar
6.	1b adder	Mini Project	28 Mar.

### Grading Elements:

<u>Element</u>	<u>Weight</u>
Labs	50%
Lab Quizes	10%
Individual Designs	15%
Design Project (s) (Periodic deliverables, CAD Files, verification, presentation & final report)	25%