

# ELE 448 Digital Integrated Circuit Design I Laboratory

## Syllabus Spring 2023

**Instructor:** Dr. A. J. Davis [davis@ele.uri.edu](mailto:davis@ele.uri.edu)  
Kirk 204  
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**Teaching Assistant:** TBA

**Lab:** W 02:00 - 04:45 Bliss 382 (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.

<b>Lab</b>	<b>Title</b>	<b>Tool</b>	<b>Dates</b>
1.	Introduction to Schematic Capture & Hspice Verification	Virtuoso Schematic, Sym. ADE & Spectre	1 Feb
2.	Ring Oscillators	“”	8 Feb.
3.	Introduction to Layout	Virtuoso Layout Editor DRC & LVS Checker	15 Feb., 22 Feb.
4.	D-Latches, Xor	“”	1 Mar
5.	D-FF's and T-FF's	“”	8 Mar
6.	4b ctr	“”	22 Mar
7.	1b adder	Mini Project	29 Mar

### Grading Elements:

<b><u>Element</u></b>	<b><u>Weight</u></b>
Labs	70%
Design Project (s) (Periodic deliverables, CAD Files, verification, presentation & final report)	30%