

Fall 2011

ESE 218: Digital Systems Design

Instructor: [Dmitri Donetski](mailto:dima@ece.sunysb.edu), E-mail: dima@ece.sunysb.edu
Office Hours: Monday, Wednesday, 4:00 - 6:00 PM, 247 Light Eng. bldg.
[Http://www.ece.sunysb.edu/~dima/e218.html](http://www.ece.sunysb.edu/~dima/e218.html)

Prerequisite: Engineering Major: PHY 127 or 132 or 142, or ESE 124
Computer Science Major: CSE 220

Description: The course develops methods of analysis and design of both combinational and sequential systems regarding digital circuits as functional blocks. The laboratory projects consist of simulation of digital circuits using CAD tools and building the circuits on breadboards.

Goal: Development of general background necessary for taking advanced Electrical and Computer Engineering courses.

Lectures: 109 Javits Center, Monday, Friday, 12:50 - 2:10 PM

Labs: 283A Light Eng. Bldg,
Section 1, Monday, 3:45 - 6:45 PM
Section 3, Tuesday, 6:50 - 9:50 PM
Section 4, Wednesday, 6:50 - 9:50 PM
Section 5, Tuesday, 12:50 - 3:50 PM

Textbook (required): M. Morris Mano, Michael D. Ciletti, "Digital Design", 4th ed., Prentice Hall, 2007, ISBN 0-13-198924-3

Lab kit (required): "ESE218", SUNYSB Bookstore

Grading: All lab reports presented, test 1/test 2/final exam (10/20/30 points), lab reports (15 points), homeworks (10 pts), quizzes (10 pts), portfolio (5 points).

Topical outline:

1. <i>Digital Concepts and Number Systems</i>	Digital signals, binary number representations, Boolean switching algebra.	20%
2. <i>Principles of Combinational Logic Design</i>	Analysis and design of combinational logic, logic minimization, logic transformation.	30%
3. <i>Principles of Sequential Logic Design</i>	Flip-flops, counters, and registers. Finite state machines, sequential circuit design	50%

References:

1. Morris Mano, Charles Kime, "Logic and computer design fundamentals", Prentice Hall, 2004, ISBN 0-13-140539-X
2. Alan Markovitz, "Introduction to logic design", McGraw-Hill, 2005, ISBN 0-07-286516-4
3. John Wakerly, "Digital Design: principles and practices", Prentice Hall, 2006, ISBN 0-13-186389-4
4. William Kleitz, "Digital Electronics: a practical approach", Prentice Hall, 2002, ISBN 0-13-089629-2