CSE 241 Digital Systems Fall 2012

Instructor: Dr. R. Sridhar **E-Mail: rsridhar**@buffalo.edu **Office:** 338K Davis Hall **Phone:** 645-3186

Office Hours: Tues 1:00pm – 2:30pm; Wed 1:00pm – 2:30pm and by appointment through email

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Class: Tuesday, Thursday 5:00pm- 6:20pm; Davis 101 Recitations: 4 sections

Description: This is a first course in digital systems, which forms the basis of all digital technologies and computer systems. Topics covered include: fundamentals of digital logic, computer arithmetic & Boolean algebra, Karnaugh map simplification, basic components of digital circuits such as logic gates and flip-flops, information representation, design of combinational and sequential circuits, memory and programmable logic devices, CPU organization, arithmetic logic unit & control unit design.

Prerequisites: Sophomore standing in CSE recommended

Textbook:
M. Morris Mano and Michael D. Ciletti, ***Digital Design with an Introduction to Verilog HDL,*** 5th Edition, Pearson Education, © 2013

References:
Donald D. Givone, ***Digital Principles and Design***, McGraw-Hill, 2003
William I. Fletcher, An Engineering Approach to Digital Design, Prentice Hall, 1980
Additional references may be cited throughout the semester

Objectives:
The objectives of this course are to introduce *the fundamentals of digital logic design*. At the end of this course, each student should
• understand the fundamentals of boolean algebra
• be able to design minimized combinational logic circuits using Karnaugh-map simplification
• understand how signed integers are represented in a digital system
• understand how addition and subtraction are performed in hardware
• understand the basic building blocks used in digital system design, such as decoders, encoders, multiplexors, latches, flip-flops, and registers
• be able to design a combinational logic system incorporating the above mentioned building blocks
• be able to design a finite state machine, allowing a real world problem to be solved using hardware

Grading Policy:
Evaluation: Exam 1 - 20 % • Exam 2 – 20% Final Exam - 30 % • Project - 10 % • Homework - 10 %; Quizzes: 10%

Letter grades will be assigned only at the end of the semester.
Grade Assignment: (Letter grades carry normal numerical values)
(91-100 = A, 89-90 = A-, 87-88 = B+, 81-86= B, 79-80 = B-, 77-78 = C+, 71-76 = C, 66-70 = C-, 60-65 = D, 1-59 = F). Curving may be applied if deemed appropriate by the instructor.

Completed homework and projects are to be submitted at the *beginning* of the class on the due date.
Late policy: Late submissions will result in a 20 % penalty per day. A day is defined as 24 hours after the day/time the assignment is due (including weekends and holidays). Maximum such delay allowed is 2 days (unless otherwise stated). In addition, no help will be available for a project or homework after its scheduled due date. Homeworks, projects, and exams may be submitted for regrades no later than two days after they are returned. If you don't pick them up on the day they are returned, it does NOT extend the regrading deadline. Regrade requests must be clearly written and attached to the assignment. Work done in pencil cannot be considered for regrade. When work is submitted for reqrade, the entire work may be regraded.

Incompletes:
As per departmental and University policy, Incomplete (I) grades are only given in cases where the student has done satisfactory work, but only lacks one or two assignments/exams because of a type of unexpected emergency or serious illness at the end of the semester and documented. Do not request an "I" grade unless you believe that you actually fall into this category, and you are prepared to present evidence. Incompletes are given only in these very rare circumstances.

Academic Dishonesty:
All work submitted for CSE 241 must be your own and must be done on an individual basis. Cheating on homework, a project, or an exam will result in automatic failure of the course.

Computer Usage:
All students are to have an account on the computer science and engineering department's SUN cluster. This account will be used for: Projects; Homework assignments;
Information will be disseminated via CSE 241 web site. Students are expected to check their *e-mail* and the CSE 241 web site regularly.

URL: http://www.cse.buffalo.edu/~rsridhar/courses/cse241/

Disabilities: If you have a diagnosed disability (physical, learning, or psychological) that will make it difficult for you to carry out the course work as outlined, or that requires accommodations such as recruiting note-takers, readers, or extended time on exams or assignments, please advise the instructor during the first two days of the course so that we may review possible arrangements for reasonable accommodations. In addition, if you have not yet done so, contact the Office of Disability Services.

Class Participation: Class participation is strongly encouraged. Quizzes may not be announced ahead of time.