COURSE OUTLINE OF RECORD

Dept., Number	CSC 2320	**Course Title**	Introduction to Computer Hardware Organization
Semester Hours	3		
Year	2006	**URL (if any):**	

Current Catalog Description:

This course covers the organization and functional design of computer components such as memory unit, arithmetic and logic unit, and I/O devices. Other topics includes: data channels, interrupts, micro-programming, and design of simple combinational circuits. Laboratory work required. Prerequisite: CSC 1311.

Textbook:

Logic and Computer Design Fundamentals, by M. Morris Mano and Charles R. Kime., Prentice Hall, 3rd edition updated, 2004

References:

1. Digital Design, Morris Mano, 3rd edition, 2002
2. Structured Computer Organization, Andrew Tanenbaum, 5th edition, 1999

Course Goals:

(1) To introduce the organization and structuring of the major hardware components of a computer.
(2) To provide the fundamentals of logic design.
(3) To understand the mechanics of information transfer and control within a digital computer system.

Prerequisites by Topic:

(1) Computer Programming
(2) Discrete Mathematics

Major Topics Covered in the Course (number of weeks):

1. Digital Computers and Information	1
2. Combinational Logic Circuits	2.5
3. Combinational Logic Design	2
4. Sequential Circuits	2.5
5. Registers and Counters	1.5
6. Memory	2
7. Register Transfers	1.5
8. Instruction Set Architecture	0.5
9. Input-Output and Communication	0.5

Laboratory Projects:

(1) Logic Gates	1
(2) Combinational Logic Circuits	2
(3) Flip-flops	3
(4) Digital Arithmetic	2
(5) Counters and Registers	2
(6) Memory Unit	2

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Estimate Curriculum Category Content (Semester hours)

Area	Core	Advanced	Area	Core	Advanced
Algorithms			Data Structures		
Software Design			Prog. Languages		
Comp. Arch.	3		Theoretical Founda.		

Oral and Written Communication:

Typically, every student is required to submit at least 5 written reports (not including exams, tests, quizzes, or commented programs) of 5 pages and make 0 oral presentations.

Social and Ethical Issues:

Students write one paper on a computer ethics topic. The paper is graded.

Theoretical Content:

Binary arithmetic (2 hours)
Simplification of Boolean functions (2 hours)
Addressing modes (2 hours)

Problem Analysis:

Sequential circuit analysis

Open-Ended Design:

Design combinational circuits and sequential circuits.