COURSE OUTLINE

Course Code: CSE 403

Course Title: Digital System Design

Level/Term: 4/1 **Section:** A/B

Academic Session: 2015-16

Course Teachers:

Name	Initial	Room	E-mail
Md. Aashikur Rahman Azim	AA	415	aashikazim@gmail.com
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Course Outline:

- ✓ Designing I/O system
- ✓ I/O devices
- ✓ Designing Microprocessor based system with interfacing chips
- ✓ Programmable peripheral interface (interface to A/D and D/A converter)
- ✓ Keyboard/display interface
- ✓ Programmable timer
- ✓ Programmable interrupt controller, DMA controller
- ✓ Design using MSI and LSI components
- ✓ Design of memory subsystem using SRAM and DRAM
- ✓ Design components of a computer: ALU, memory and control unit hardwired and micro programmed
- ✓ Microprocessor based designs
- ✓ Computer BUS standards
- ✓ Design special purpose controllers

Learning Outcomes/Objectives:

After undergoing this course, students should be able to:

i. Design an Arithmetic Logic Unit (ALU), an Accumulator & a Simple as Possible (SAP) computer
ii. Design a Control Unit for the large scale operation in the processor using LSI chips
iii. Design a digital system interfacing between computer and digital devices
iv. Design a digital system interfacing between computer and analog devices
v. Design a microprocessor based digital system to control different peripheral device

Assessment:

Attendance	**10%**
Class Tests / Class Assessment / Assignments / Projects	**20%**
Term Final	**70%**

Text and Reference books:

Book Name	Author	Edition
Digital Logic Design and Computer Design	M. Morris Mano	2nd or 3rd
Digital Computer Electronics	Albert P. Malvino, Jerald A Brown	3rd
Microprocessors and Interfacing: Programming and Hardware	Douglas V. Hall	2nd (Revised)

Tentative Weekly schedule:

Week	Topics	Teacher's Initial
Week 1	✓ ALU Design	AA
Week 2	✓ ALU Design Contd. & Accumulator Design	AA
Week 3	✓ Booth & Modified Booth Multiplier ✓ Design using LSI (PLA & ROM) packages	AA
Week 4	✓ Control Logic Design	AA
Week 5	✓ SAP 1	AA
Week 6	✓ SAP 1 Contd. & SAP 2	AA
Week 7	✓ SAP 3	AA
Week 8	✓ Designing I/O system ✓ I/O devices	MDIIS
Week 9	✓ Designing Microprocessor based system with interfacing chips	MDIIS
Week 10	✓ Programmable peripheral interface (interface to A/D and D/A converter)	MDIIS
Week 11	✓ Keyboard/display interface ✓ Programmable timer	MDIIS
Week 12	✓ Programmable timer ✓ Programmable interrupt controller	MDIIS
Week 13	✓ DMA controller	MDIIS
Week 14	✓ Design of memory subsystem using SRAM and DRAM	MDIIS

Prepared by :	
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