

<b>CSEN2011</b>	<b>COMPUTER ORGANIZATION AND ARCHITECTURE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>J</b>	<b>C</b>
		<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>Pre-requisite</b>	Digital Logic Circuits						
<b>Co-requisite</b>	None						
<b>Preferable exposure</b>	None						

**UNIT 1                      Register Transfer and Micro operations:                      8 hours**

Register transfer language, register transfer, bus and memory transfers, arithmetic micro-operations, logic micro-operations, shift micro-operations, arithmetic logic shift unit

**UNIT 2                      Basic Computer Organization and Design                      11 hours**

Basic Computer Organization and Design Instruction codes, computer registers, computer instructions, timing and control, instruction cycle, memory-references instructions, input-output and interrupt, complete computer description. Design of the basic computer, Design of accumulator logic. Micro programmed Control: Control memory, address sequencing, micro program example, Design of control unit.

**UNIT 3                      Central Processing Unit                      10 hours**

**Central Processing Unit:** Introduction, general register organization, stack organization, instruction formats, addressing modes, data transfer and manipulation, program control.

Pipeline and Parallel Processing: Parallel processing, pipelining, arithmetic pipeline, instruction pipeline.

**Computer Arithmetic:** Introduction, addition and subtraction, decimal arithmetic unit, Booth's multiplication algorithm.

**UNIT 4                      Input-Output Organization                      8 hours**

Peripheral devices, I/O Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, DMA, I/O Processor, Serial Communication.

**UNIT 5                      Memory Organization                      8 hours**

Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memories, Cache Memory, Virtual Memories, Memory Management Hardware

**TextBooks:**

1. M. Morris Mano, Computer System Architecture, 3/e, Pearson education, 2008

**References:**

1. Carl Hamacher, Zvonko Vranesic, Safwat Zaky, Computer Organization, 5/e, McGraw Hill, 2001
2. John P. Hayes, Computer Architecture and Organization, 3/e, McGraw Hill, 1998.
3. William Stallings, Computer Organization and Architecture, 6/e, Pearson PHI, 2012.

**CO-PO Mapping:**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	1	2									1	2	2
CO2	2	2	2	2		2			2				1	2	2
CO3	1	2	1	2					2				2	2	2
CO4	1	1	1	2									2	2	2
CO5	1	1	2	2									2	2	2

Note: 1 - Low Correlation 2 - Medium Correlation 3 - High Correlation