



## Lesson Plan

**Program:**BCA

**Semester:** III **CourseCode:**BCA-303 **CourseName:** Computer Architecture and Assembly Language

### Course Objectives

- CO 1. To study basic computer organization and design.
- CO 2. To study the General Register Organization/ stacks organizations instructionformats
- CO 3. To discuss the Computer Arithmetic
- CO 4. Analysis of Input Output Organization
- CO 5. To study the evaluation of Microprocessor
- CO 6. To discuss Assembly language operations

**SessionDuration:**60 minutes

**Participants:** BCA Third Semester Students

**Entry level knowledge and skills of students**

- i. Knowledge of Computer Circuits & Design

### Equipment required in Classroom/Laboratory/Workshop

- i. Projector
- ii. White Board & Marker

### Assessment Schemes

S. No.	Criteria	Marks (100)
1	CCSU End Term Examination	75
2	Internal Evaluation Scheme	25
2(a)	Teacher Assessment (Continuous Evaluation) (Assignment & Attendance)	25
2(a)(i)	Assignment -1	10
2(a)(ii)	Assignment -2	10
2(a)(iii)	Attendance (compulsory)	5

### Course Outcomes

- (CO1): Able to understand the concept of Basic Computer Organization and Design *Understanding (K2), Applying (K3)*
- (CO 2): Understand the concept of General Register Organization. *Understanding (K2)*
- (CO3): Interpretation of computer arithmetic *Understanding (K2)*
- (CO4): Able to understand the analysis of Input & Output *Understanding (K2)*
- (CO5): Able to design and understand the Microprocessor Architecture *Understanding (K2), Applying (K3)*
- (CO6): Able to understand concept of Assembly Language *Understanding (K2)*



L. No.	Topics	SubTopics	Date of Implementation	Pedagogy	CO-Covered	Faculty Sign	HoD's Remark with Date
<b>Unit -1</b>							
1.	Discussion about the Subject Syllabus and Learning outcomes	Course Objective & Course Outcome			CO-1 TOCO-6		
2.	<b>Basic computer organization and design</b>	Instructions and instruction codes, Timing and control		<ul style="list-style-type: none"> <li>Lecture</li> </ul>	CO-1		
3.		Instruction cycle		<ul style="list-style-type: none"> <li>Lecture</li> </ul>	CO-1		
		Continued		<ul style="list-style-type: none"> <li>Lecture</li> </ul>			
4.		Register/ Types of register/ general purpose & special purpose registers/ index registers,		<ul style="list-style-type: none"> <li>Lecture</li> <li>Brainstorming</li> </ul>	CO-1		
5.		Continued		<ul style="list-style-type: none"> <li>Lecture</li> <li>Brainstorming</li> </ul>			
6.		Register transfer and micro operations/register transfer instructions		<ul style="list-style-type: none"> <li>Lecture</li> <li>Brainstorming</li> </ul>	CO-1		
7.		Memory and memory function Bus/ Data Transfer instructions		<ul style="list-style-type: none"> <li>Lecture</li> <li>Buzz Grouping</li> </ul>	CO-1		
8.		Arithmetic logic micro-operations/ shift micro-		<ul style="list-style-type: none"> <li>Lecture</li> <li>Brainstorming</li> </ul>	CO-1		



	operations					
9.		Input/ Output and interrupts		• Lecture	CO-1	
10.		Memory reference instructions		• Lecture	CO -1	
11.		Memory interfacing memory/ Cachememory.		• Lecture	CO - 1	

**Unit -2**

12.	<b>Central Processing Unit:</b>	General Register Organization/ stacks organizations instruction formats.		• Lecture	CO-2	
13.		Addressing modes		• Lecture • Brainstorming	CO-2	
14.		Data transfer and manipulation		• Lecture • Group Discussion	CO-2	
15.		Program control reduced computer		• Lecture • Group Discussion	CO-2	
16.		Pipeline/ RISC/ CISC pipeline vector processing/ array processing		• Lecture • Group Discussion	CO-2	
17.		Arithmetic Algorithms: Integer multiplication using shift and add, Booth's algorithm, Integer division, Floating-point representations.		• Lecture • Group Discussion	CO-2	

**Unit -3**

18.	<b>Computer Arithmetic</b>	Addition, subtraction and multiplication algorithms		• Lecture • Brainstorming	CO-3	
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19.		Divisor algorithms.		Lecture Demonstration	CO-3		
20.		Floating point, arithmetic operations,		•Lecture •Brainstorming	CO-3		
21.		Decimal arithmetic operations, decimal arithmetic operations.		•Lecture •Brainstorming	CO-3		

**Unit –4**

22.	<b>Input - Output Organization</b>	Peripheral devices, Input/output interface		•Lecture •BuzzGrouping	CO-4		
23.		ALU Asynchronous Data transfer		• Lecture •Brainstorming	CO-4		
24.		Mode of transfer		•Lecture •Brainstorming	CO-4		
25.		Priority interrupts		•Lecture •Brainstorming	CO-4		
26.		Direct memory Address (DMA)		•Lecture •BuzzGrouping	CO-4		
27.		Input/ Outputprocessor (IOP), serial communication		•Lecture •BuzzGrouping	CO-4		

**Unit – 5**

28.	<b>Evaluation of Microprocessor</b>	Overview of Intel 8085 to Intel Pentium processors Basicmicroprocessors		•Lecture •Brainstorming	CO-5		
29.		Architecture and interface		•Lecture •Brainstorming	CO-5		
30.		External and Internal architecture memory and input/output interface		•Lecture •BuzzGrouping	CO-5		



Unit –6		Greater Noida (U.P.)					
31.	<b>Assembly Language</b>	Assembly language, Assembler, Assembly level instructions		•Lecture •Brainstorming	CO-6		
32.		Macro, use of macros in I/C instructions		•Lecture •BuzzGrouping	CO-6		
33.		Program loops, programming arithmetic and logic subroutines		•Lecture •BuzzGrouping	CO-6		
34.		Input-Output programming		•Lecture •Brainstorming	CO-6		

**TextBooks:**

1. Computer System Architecture by Morris Mano

**Books Recommended for Reading and Reference:**

2. Leventhal, L.A, "Introduction to Microprocessors", Prentice Hall of India.
3. Mathur, A.P., "Introduction to Microprocessors", Tata McGraw Hill.