

**B.P. PODDAR INSTITUTE OF MANAGEMENT AND TECHNOLOGY**

Academic Year -2024–25 (Odd Semester)

**LESSON PLAN****Program: Computer Science and Engineering****Credit: 3****Contact: 3L****Paper : Computer Organisation****Paper Code: PCC-CS302**

<b>L.NO</b>	<b>Topics Covered</b>	<b>Books</b>	<b>Teaching Aids</b>	<b>Teaching Methodology</b>
L1	Introduction to Computer Organization and basic architecture	T1	Green board	Lecturing
L2	Stored program concept, program execution, OS/compiler role	T1	Green board, PPT	Lecturing
L3	Fetch-Decode-Execute cycle	T1	Green board, PPT	Lecturing
L4	Operators, Operands, Registers, Instruction Format	T1	Green board	Lecturing
L5	Instruction Sets and Addressing Modes (Part 1)	T1	Green board	Lecturing
L6	Instruction Sets and Addressing Modes (Part 2)	T1	Green board	Lecturing
L7	Number Systems – Binary, Octal, Hex	T1	Green board	Lecturing
L8	Number Conversion and Arithmetic	T1	Green board	Lecturing
L9	Fixed and Floating-Point Representation	T1	Green board	Lecturing
L10	Overflow and Underflow Concepts	T2	Green board	Lecturing
L11	Design of Adders – Ripple Carry	T2	Green board	Lecturing
L12	Carry Look-Ahead Adder Design	T2	Green board	Lecturing
L13	ALU Design Basics	T2	Green board	Lecturing
L14	Booth's Algorithm – Fixed Point Multiplication	T2	Green board	Lecturing
L15	Division Algorithms – Restoring and Non-Restoring	T2	Green board	Lecturing
L16	Floating Point Standards – IEEE 754	T2	Green board	Lecturing
L17	CPU-Memory Interfacing Basics	T1	Green board	Lecturing
L18	Memory Organization – SRAM, DRAM	T1	Green board	Lecturing
L19	Memory Hierarchy & Associative Memory	T1	Green board	Lecturing
L20	Cache Memory	T1	Green board	Lecturing
L21	Virtual Memory	T1	Green board	Lecturing

L22	Data Path Design	T1	Green board	Lecturing
L23	Data Path Read/Write Access	T1	Green board	Lecturing
L24	Hardwired Control Unit Design	T1	Green board	Lecturing
L25	Microprogrammed Control Unit Design	T1	Green board	Lecturing
L26	Comparison: Hardwired vs Microprogrammed	T1	Green board	Lecturing
L27	Instruction Pipelining – Basics	T1	Green board, PPT	Lecturing
L28	Pipelining Hazards and Handling	T1	Green board	Lecturing
L29	Introduction to RISC Architecture	T1	Green board	Lecturing
L30	RISC vs CISC	T1	Green board	Lecturing
L31	I/O Operations – Introduction	T1	Green board	Lecturing
L32	Polled I/O and Handshaking	T1	Green board	Lecturing
L33	Interrupt-Driven I/O	T1	Green board	Lecturing
L34	DMA – Concepts and Use	T1	Green board	Lecturing
L35	Revision: Instruction Sets and ALU	T1	Green board	Interactive Recap
L36	Revision: Memory and Interfacing	T1	Green board	Interactive Recap
L37	Revision: Control Unit Design	T1	Green board	Interactive Recap
L38	Revision: I/O and DMA	T1	Green board	Interactive Recap
L39	Sample Problem Solving Session – Full Syllabus	T1	Green board	Hands-on Examples
L40	Mock Test and Doubt Clearing	T1	Green board	Discussion, Q&A

### **Text Books**

**T1: M.M. Mano, *Computer System Architecture*, PHI**

**T2: Behrooz Parhami, *Computer Architecture*, Oxford University Press**

### **Reference Books**

**R1: J.P. Hayes, *Computer Architecture & Organisation*, McGraw Hill**

**R2: Hamacher, *Computer Organisation*, McGraw Hill**

**R3: N. Senthil Kumar et al., *Microprocessors and Microcontrollers*, OUP**

**R4: P. Pal Chaudhuri, *Computer Organisation & Design*, PHI**

**R5: P.N. Basu, *Computer Organization & Architecture*, Vikas Publishing**

**Web References:**

**W1: NPTEL Course – Computer Organization and Architecture by IIT Kharagpur**  
<https://nptel.ac.in/courses/106105163>

**W2: GeeksforGeeks – Computer Organization Tutorials**  
<https://www.geeksforgeeks.org/computer-organization-and-architecture-tutorials/>

**W3: TutorialsPoint – Computer Organization and Architecture**  
[https://www.tutorialspoint.com/computer\\_organization/index.htm](https://www.tutorialspoint.com/computer_organization/index.htm)

**W4: Javatpoint – Computer Organization and Architecture Notes**  
<https://www.javatpoint.com/computer-organization-and-architecture>

**Course Faculty**