

SES's L.S. RAHEJA COLLEGE OF ARTS AND COMMERCE (AUTONOMOUS)

Syllabus for Approval

BoS meeting held on: 04-04-2026

AC meeting held on: 07-04-2026

Board of Studies: Information Technology and Data Science

Sr. No.	Heading	Particulars
1	Nomenclature of the Course	Computer Organization
2	Eligibility for Admission	College Admission Regulations 2026
3	Passing Marks for Eligibility	40
4	Regulations	College Regulations on Admission
5	Programme	Bachelor of Science in Artificial Intelligence & Data Science
6	Semesters	I
7	NEP Vertical	SEC (Skill Enhancement Course)
8	Credit	02
9	Level U.G/PG	U.G.
10	Pattern	Semester
11	Status	New
12	To be implemented from Academic Year	2026–27

Date:

Chairman / Chairperson:

(Dr. Prajakta Joshi)

**SES's L.S. RAHEJA COLLEGE OF ARTS AND COMMERCE
(AUTONOMOUS)**



BOARD OF STUDIES: Information Technology and Data Science

Programme: B.Sc. (Artificial Intelligence & Data Science)

Semester: I

Nomenclature of the Course: Computer Organization

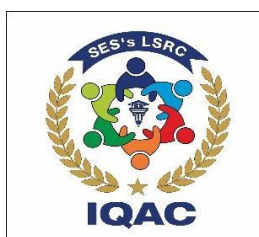
NEP Vertical: SEC

Credit: 02

Total Marks: 50

Academic Year: 2026–27

(As per Choice Based Credit System under NEP 2020)



Unit-wise Detailed Syllabus

Unit	Detailed Contents	Andragogy (Theory + Hands-on)	Hours
I	Basic Computer Organization & Number Systems - Functional Units of a Computer – Input, Output, Memory, CPU - Von Neumann Architecture - Number Systems – Binary, Decimal, Octal, Hexadecimal - Number System Conversions - Binary Arithmetic – Addition, Subtraction - Signed Number Representation (1's & 2's Complement) - Basic Logic Gates – AND, OR, NOT, NAND, NOR, XOR - Truth Tables	Diagram-based explanation, Board problem solving, Hands-on Activities: - Perform number conversions manually and using online tools - Binary arithmetic exercises - Design logic gate truth tables - Simulate basic gates using digital simulator (e.g., Logisim – demonstration level)	15
II	CPU Organization, Memory & I/O Systems - CPU Components – ALU, Control Unit, Registers - Instruction Cycle – Fetch, Decode, Execute - Types of Instructions (Arithmetic, Logical, Data Transfer) - Memory Organization – RAM, ROM, Cache (Basic Concept) - Secondary Storage Devices - Input and Output Devices - Introduction to Assembly Language (Conceptual Overview) - Performance Concepts – Clock Speed, Word Length	Flowchart explanation of instruction cycle, Real hardware identification, Hands-on Activities: - Identify CPU components in system (demonstration) - Trace instruction cycle using example - Compare RAM types using system settings - Simple assembly-like instruction tracing exercise	15

Learning Objectives

- To understand the basic structure and functional units of a computer system.
- To perform number system conversions and binary arithmetic.
- To understand CPU organization and instruction execution cycle.
- To identify memory hierarchy and I/O organization.
- To relate hardware organization concepts with system performance.

Course Outcomes (CO)

CO No.	Course Outcome	Bloom's Level	PSO Mapped
CO1	Explain functional units of a computer system	Understand (L2)	PSO1
CO2	Perform number system conversions and binary arithmetic	Apply (L3)	PSO2
CO3	Analyze instruction cycle and CPU operations	Analyze (L4)	PSO1
CO4	Differentiate types of memory and storage devices	Understand (L2)	PSO1
CO5	Interpret basic system performance parameters	Analyze (L4)	PSO2

Suggested Readings

Sr. No.	Title	Author / Source
1	Computer Organization and Architecture	William Stallings
2	Structured Computer Organization	Andrew S. Tanenbaum
3	Computer System Architecture	M. Morris Mano
4	Digital Fundamentals	Thomas L. Floyd

QUESTION PAPER PATTERN

(B) FOR CONTINUOUS EVALUATION

Particulars	Marks
Class Test	10
Assignment / Programming Task	10
Total	20

B) FOR SEMESTER END EXAMINATION

Maximum Marks: 30

Duration: 1 Hour

Question No.	Description	Total Marks
Q1	Attempt Unit I	
	A – Remembering	15
	B – Applying	
	C – Analysing	
OR		
	P – Remembering	15
	Q – Applying	
	R – Analysing	
Q2	Attempt Unit II	
	A – Understanding	15
	B – Applying	
	C – Evaluating/Analysing	
OR		
	P – Remembering	15
	Q – Understanding	
	R – Evaluating/Analysing	