

## **SEMESTER-III**

# St. Xavier's College (Autonomous), Ahmedabad

Syllabus of Semester – III of the following departments under Faculty of Computer Science based on Undergraduate Curriculum Framework to be implemented from the Academic Year 2025-26.

## DEPARTMENT OF COMPUTER SCIENCE

### Computer Organization and Introduction to Microprocessor

#### CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Prerequisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
Computer Organization and Introduction to Microprocessor (BCASE331C)	2	0	0	10 + 2 from a recognized board in any stream	Nil

#### Learning Objective:

1. Discuss the basic concepts and structure of computers.
2. Understand concepts of register transfer logic and arithmetic operations.
3. Explain different types of addressing modes and memory organization.

#### Learning Outcome:

- Understand the theory and architecture of central processing unit.
- Understand the architecture and functionality of central processing unit.
- Exemplify in a better way the I/O and memory organization.

#### Unit 1:

- Von Neumann Architecture
- BUS concepts
- Interrupts Concepts
- Device Controller & Device Driver

- Types of Computer Memory (Hierarchy)
- Main Memory, Axillary Memory
- CAM, Virtual Memory
- Cache Principal
- Cache Replacement
- Memory Mapping Techniques
- Registers and Concept of Flip flop
- Concept of Adders, Encoder, Decoder, MUX and DMUX

## **Unit 2:**

- Digital Signals
- Logic Gates
- Boolean Expression and Digital Circuit
- Boolean Expression and Digital Circuit
- Integrated Circuits
- Sequential Circuits vs Combinations Circuits
- Logic Families
- Introduction to Embedded Systems
- Introduction of Microprocessor
- Microprocessor 8086 pin diagram
- Mobile Processors
- Latest Processors

## **Text Book:**

- 1) Computer System Architecture By: M. Morris Mano  
Publisher: PHI
- 2) Computer Architecture and Organization By: B. Govindrajalu  
Publisher: McGrawHill
- 3) Computer Organization and Advanced Microprocessors By: Tripti Dodiya & Zakiya Malek  
Publisher: Cengage

## **Reference Books:**

- 1) Advanced Microprocessors and Interfacing By:  
- Badri Ram  
Publisher: Tata Mcgraw Hill