

Branch Name:	IMCA
Program Code:	CS301
Course Name:	Fundamentals of Computer Organization
Course Code:	2CS3010104T
Prerequisite Course:	Basic knowledge of Computer

Course Objective:

This course is intended to make the students

1. To be aware of working principles of components involved in a typical computer system.
2. To learn about various number systems and conversions among them.
3. To recognize various basic building blocks (logic gates) and combinational circuits.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	-	-	3	50	50	-	-	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Introduction to Computers and Peripherals: Basics of Computer, Classifications of Computers, Computer Generations, Major Components of a Digital Computer: Hardware & Software, System Software vs. Application Software. • Input Devices: Keyboard, Mouse, Scanner. • Output Devices: Monitors (CRT/VDU). • Printers: Dot Matrix, Inkjet, Laser.	12	25
2	Number Systems and Arithmetic: Types of Number Systems (Binary, Decimal, Octal, Hexadecimal). Number System Conversions: Binary to Decimal, Decimal to Octal, Octal to Binary, Hexadecimal to Binary, Decimal to Hexadecimal, complements. Binary Arithmetic: Addition, Subtraction	12	25

3	Basic concepts of Memory and Logic Circuits: Types of Memory (Primary, Secondary, Cache and Virtual), Storage Devices (Hard Disk, Floppy Disk, CD, DVD) Logic Gates: AND, OR, NOT, NAND, NOR, XOR, XNOR.	12	25
4	Combinational Circuits: Half Adder and Full Adder, half and full Subtractor, Decoders, Encoder. Sequential Circuits: Flip-Flops- SR Flip- Flop, D Flip-Flop, J-K Flip-Flop, T Flip-Flop	12	25

Text Books:

1. Fundamentals of computers – By. V. Raja Raman, PHI Publication

Reference Books:

1. Fundamentals of computers – By. Anand Kumar, PHI Publication
2. Computer Architecture – By K M Hebbar, MacMillan Publication

List of Open Source Software/learning website/E-Resource / Web Links:

1. <http://williamstallings.com/ComputerOrganization/>
2. <https://www.pearsonhighered.com/cs-resources/products/product.html#product,isbn=0132916525>
3. NPTEL – Computer Organization and Architecture:
<https://nptel.ac.in/courses/106/105/106105163/>(Free video lectures and materials by IIT professors)
4. Geeks for Geeks – Computer Organization Basics:
<https://www.geeksforgeeks.org/computerorganization-and-architecture-Tutorials/>(Tutorials with diagrams and simple explanations)
5. Tutorials Point – Computer Fundamentals:
https://www.tutorialspoint.com/computer_fundamentals/index.htm (Good for hardware, input/output devices, and memory concepts)

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Identify and explain the basic structure and components of a digital computer system.	1 Remembering 2 Understanding
CLO2	Distinguish between types of computer memory and storage devices, and explain their uses.	1 Remembering 2 Understanding
CLO3	Apply different number systems and perform conversions between them accurately.	2 Understanding 3 Applying, 4 Analyze
CLO4	Demonstrate understanding of basic logic gates and construct simple logical circuits.	2 Understanding 4 Analyze 5 Evaluate

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	-	-	-	H	H	-	M	-	-	-	-	-	L	-
CLO2	H	-	M	H	H	-	M	-	-	M	M	-	M	L
CLO3	-	M	-	M	M	M	-	M	-	-	-	-	-	M
CLO4	-	-	-	H	H	-	M	-	-	-	-	-	L	-

H: High, **M:** Medium, **L:** Low