

Subject Code : 2CS1010103	Subject Title: Fundamentals of Computer Organization
Pre-requisite:	- NONE -

Course Objective:

The course aims to make the student aware of working principles of components involved in a typical computer system. It intends to make the student learn about various number systems and conversion among them. The student is expected to recognize various basic building blocks (logic gates) and combinational circuits.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	1	-	4	70	30	-	-	100

Subject Contents				
Sr. No	Topics	Total Hours	Weight (%)	
1	Computer basics, Computer generations, Classifications of Computers Digital & Analog systems, Logic levels and pulse wave forms, digital computer, Major parts of computer, Hardware, Software - Application and System Software. Computer generations. Classifications of Computers.	9	20	
2	Working Principles of Input / Output devices Input devices: Keyboard, Mouse, Light pen, Joystick, Scanner, Voice input system, Touch screen Output devices: Monitor - CRT terminals (Monitor / VDU), Non – CRT terminals(LCD, Plasma display, LED) Printer - Dot matrix printer, Ink jet printer, Laser printer, Line printer, Plotter	9	20	
3	Working Principles of Memory and Storage Devices Understanding the principles of Main/Cache memory, Primary/Secondary memory, Physical/Virtual memory Magnetic memory - Magnetic Tape, Hard disk, Floppy disk, Semiconductor memory - RAM, ROM, Flash memory Optical memory - CD, CD-ROM, CD-RAM, DVD, DVD-ROM, DVD-RAM Binary classification of codes - 8421 BCD code, Excess-3(XS-3) code	9	20	
4	Number system, Conversion, Binary arithmetic Number system - Binary, decimal, octal, hexadecimal Conversion - Binary to decimal, decimal to binary, octal to decimal, decimal to octal, octal to binary, binary to octal, hexadecimal to binary, binary to hexadecimal, hexadecimal to Decimal, decimal to hexadecimal, hexadecimal to octal, octal to hexadecimal Binary arithmetic – Addition, subtraction	9	20	
5	Logic gates, Combinational circuits, Data Processing circuit Logic gates - AND, OR, NOT, NAND, NOR, Exclusive-OR, Exclusive-NOR Combinational circuits - Half adder, Full adder, Half subtractor, Full subtractor Data Processing circuit - Decoder, Encoder	9	20	

Course outcomes:

At the end of the course, the students would be able to:

- Understand working principles of fundamental components of a typical computer system.
- Learn various number systems and conversion among them.
- Recognize various basic building blocks (logic gates) and combinational circuits.

List of References:

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

E-Resource / Web Links:

- <http://williamstallings.com/ComputerOrganization/>
- <https://www.pearsonhighered.com/cs-resources/products/product.html#product,isbn=0132916525>