C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:- Computer Science
DEPARTMENT OF: - Master of Computer Applications
SEMESTER: -I
CODE: - 5CS01MCO1
NAME: – BASICS OF COMPUTER ORGANIZATION

Teaching and Evaluation Scheme

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	Total
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS01MCO1	BASICS OF COMPUTER ORGANIZATION	4	-	-	4	4	30	1.5	70	3	-	-	-	100

Objectives:
- To be able to understand the concepts of Computer Basics
- To Develop Proficiency in Creating Circuits Designing.

Prerequisites:
- Knowledge of Basic Computer Fundamentals

Course Outline

Sr. No.	Course Contents	Hours
1	**Basics of Computer** Introduction to Computer, block diagram of digital computer, Input-output devices (VDU, scanner, mouse, keyboard, printer, plotter, Joystick, multimedia projector)	3
2	Number System (I) Basics of Number System Introduction, Binary Number System, Decimal Number System Conversions Of Binary, Decimal, Octal, Hexadecimal number system (II) Binary Operations in number system Binary Addition,subtraction,multiplication,Division (III)Complements in Number system 1's Complements,2's Complements,n's complement Binary Addition & Subtraction using complements (IV) Binary Number System Codes Weighted and Non-weighted codes BCD Code: Excess Three (XS-3) Code Gray Code: Binary to Gray & Gray to Binary	8

3	**Boolean Algebra**	7
	Introduction of Boolean algebra, Boolean Expression & Boolean Function	
	Operations of Boolean algebra, Laws of Boolean algebra, De Morgan's law	
	Perfect induction Method, Simplification of Boolean Expressions	
4	**Application of Logic Gates & Bo0lean Algebra**	6
	Introduction to Gate, Types of Gate, Universal Gate(Proof of Universal gate)	
	Duality in Boolean algebra, Draw the logical Circuit using Gates, Sum of Product & Product of Sum,MAP Method for simplifying Expressions	
	K'MAP,K'MAP with don't care Condition(2 variables,4 variables)	
5	**Combinational Circuit**	5
	Introduction of Combinational Circuit, Half Adder, Full adder, BCD Adder(4-bit),Parallel Binary Adder,Half Subtractor, Full subtractor Decoder (Binary To Otcal Converter) , encoder,Decoder using NAND Gate,Multiplexer, DeMUX	
6	**Sequential Circuit**	8
	Sequential Circuit, Differentiate Circuit differ from Combinational Circuit,	
	Flip flop Introduction, using NAND & NOR gates.,SR flipflop using NAND & NOR gates(with truth table), JK Flipflop(with truth table), ,Master-slave JK Flipflop, Registers,Types of Registers, Counters, Binary Counters, Asynchronous Binary Counter	
7	**Memory Unit**	3
	What is Memory? Types of Memory(Memory Hierarchy),RAM,ROM,RAM V/s ROM, Secondary Storage Memory(Harddisk, floopy disk, Magnetic Disk), Cache Memory, Virtual Memory	
8	**CPU & I/O Organization**	7
	Stack Organization (Intro.),Instruction Formats,Addressing modes Asynchronous Data Transfer,Modes of Transfer,Direct Memory Access(DMA), Addressing Modes	
9	**Basics of Microprocessor**	3
	Introduction to Microprocessor, Introduction To 8086 Microprocessor Instruction & pin Diagram of 8086 Microprocessor	

Learning Outcomes

- Students will get the knowledge of computer organization and architecture.
- They will know the actual working and organization of digital computer system.

Books Recommended:-

1. Thomas C. Bartee, "Digital Computer Fundamentals", Tata McGraw-Hill, 6th Edition
2. Sunil Mathur, "Microprocessor 8086 – Architecture, Programming and Interfacing", Prentice Hall India (PHI),
3. Thomas C. Bartee, "Computer Architecture and Logic Design", Tata McGraw-Hill (2010), ISBN: 978-0-07-106713-3