



M. C. E. Society's

Abeda Inamdar Senior College

Of Arts, Science and Commerce, Camp, Pune-1

(Autonomous) Affiliated to Savitribai Phule Pune University

NAAC accredited 'A' Grade

B.C.A. (Science) (Minor) as per NEP

(CBCS – Autonomy 21 Pattern)

Course Offered as	Minor (Theory)
Course/ Paper Title	Computer Organization
Course Code	23SBCA31MN
Semester	III
No. of Credits	2
No of Hours	30

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To study number system, logic gates
2.	To understand combinational & Sequential circuits.
3.	To provide a broad overview of architecture and functioning of computer systems
4.	To learn the basic concepts behind the architecture and organization of computers.

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
1.	Data representation and Computers Arithmetic
2.	Design of Combinational Circuit.
3.	Design of Sequential circuit.

Syllabus

Unit No	Title with Contents	No. of Lectures
Unit I	Data representation and Computers Arithmetic	8
	<ol style="list-style-type: none"> 1. Introduction to Decimal, Binary and Hexadecimal Number Systems and their inter-conversions 2. BCD code, Gray code and ASCII Code 3. 1's and 2's complement of binary numbers 4. Binary Addition , Binary Subtraction , Binary subtraction using 1's and 2's complement Method 	
Unit II	Logic Gates and Boolean Algebra	12
	<ol style="list-style-type: none"> 1. Logic gates (With their symbols, Boolean Equation and Truth Table) 2. Boolean theorems, Boolean Laws, De Morgan's Theorem, simplifying of Boolean expression using Boolean Algebra, Implementation of other gates using universal gates 3. Karnaugh Maps: Introduction, Reduction technique using Karnaugh maps ,2/3/4 variable K-maps, Grouping of variables in K-maps, simplifying of Boolean expression using K-map 	
Unit III	Combinational Circuits and Sequential Circuits	16
	<ol style="list-style-type: none"> 1. Arithmetic Circuits: Half Adder, Full Adder, Parallel Adder, Half Subtractor, Universal Adder / Subtractor 2. Study of Multiplexer and Demultiplexer 3. Study of Encoder and Decoder 4. Flip Flops: Introduction and Types 5. Shift Registers: Introduction, Types of Shift registers, Ring Counter. 6. Counters -Synchronous and Asynchronous type (3 -bit Up, Down and Up - Down counter) 7. IC 7490: Internal Block Diagram and designing Mod-N counters. 	

References:

1. R.P. Jain, “Modern Digital Electronics”, McGraw-Hill Publications.
2. Floyd and Jain, “ Digital Fundamentals”, Pearson Publication
3. Morris Mano , “Computer System Architecture”, Prentice-Hall.

Website Reference Link:

1. Tutorial Points
https://www.tutorialspoint.com/microprocessor/microcontrollers_overview.htm
2. Electronic Tutorials : https://www.electronics-tutorials.ws/boolean/bool_7.html

