Jyotiba Phule Govt. College, Radaur
Lesson Plan
AUG TO NOV 2023-24
Name of the Assistant Professor – Dr. Nancy Sharma
Subject : Computer Science

Month	BA 3RD Sem	BCA IST Sem	BA 2ND Sem	BCA 3RD Sem
JULY-AUGUST	Introduction: Program vs. Software, Software Engineering, Programming paradigms, Software Crisis – problem and causes, Phases in Software development: Requirement Analysis, Software Design, Coding, Testing, Maintenance, Software Development Process Models: Waterfall, Prototype, Evolutionary and Spiral models, Role of Metrics. ASSIGNMENT: MODELS TEST	Number Systems: Binary, Octal, Hexadecimal etc. Conversions from one number system to another, BCD Number System. BCD Codes: Natural Binary Code, Weighted Code, Self Complimenting Code, Cyclic Code. Error Detecting and Correcting Codes. Character representations: ASCII, EBCDIC and Unicode. Number Representations: Integer numbers - sign-magnitude, 1's & 2's complement representation. Real Numbers normalized floating point representations. ASSIGNMENT: CONVERSION TEST	Operating System - Definition, Functions, Types of Operating System, Basics of Popular Operating Systems, The User Interface, Exploring Computer, Icons, taskbar, desktop, Using Menu and Menu selection, managing files and folders, Control panel – display properties, add/remove software and hardware, Common utilities. ASSIGNMENT TEST	Object oriented Programming Features and befits ,Class and object , Data Hiding & Encapsulation , Structures , data members and member function ,Scope resolution operator and its significance , Static Data Member , Static member functions ,Nested and Local Class ,Accessing members of class and structure Assignment: features of oops ASSIGNMENT TEST
SEPT	Feasibility Study, Software Requirement Analysis and Specifications: SRS, Need for SRS, Characteristics of an SRS, Components of an SRS, Problem Analysis, Information gathering	Binary Arithmetic: Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division using 1's and 2's Compliment representations, Addition and subtraction with BCD representations. Boolean Algebra: Boolean Algebra Postulates, basic Boolean	Word Processing - Introduction to Word Processing, Menus, Creating, Editing & Formatting Document, Spell Checking, Printing, Views, Tables, Word Art, Mail Merge, Macros, Inserting hyperlinks, Searching for text, Modifying page setup, Applying document themes,	Constructor, Initialization using constructor , types of constructor – Default, parameterized & copy constructors ,constructors overloading , default values to parameters, destructors , console , I/O Hierarchy of console stream classes, unformatted and formatted I/O operations Manipulators, friend function ,friend Class Arrays,

	tools, Organising and structuring information, Requirement specification, validation and metrics. Cohesion & Coupling, Classification of Cohesiveness & Coupling ASSSIGNMENT TEST	Theorems, Boolean Expressions, Boolean Functions, Truth Tables, Canonical Representation of Boolean Expressions: SOP and POS, Simplification of Boolean Expressions using Boolean Postulates & Theorems, Kaurnaugh-Maps (upto four variables), Handling Don't Care conditions. 10 ASSIGNMENT 2:K MAP TEST Logic Gates: Basic Logic Gates – AND, OR, NOT,	Applying document style sets, Inserting headers and footers. ASSIGNMENT TEST	Array of Objects, Passing and Returning Objects to Functions String Handling in C++, Functions Overloading Inline Functions ASSIGNMENT TEST
OCT	Structured Analysis and Tools: Data Flow Diagram, Data Dictionary, Decision table, Decision trees, Structured English, Entity-Relationship diagrams .Software Project Planning: Cost estimation: COCOMO model, Project scheduling, Staffing and personnel planning, team structure, Software configuration management, Quality assurance plans, Project monitoring plans, Risk Management.	Universal Gates NAND, NOR, Other Gates – XOR, XNOR etc. Their symbols, truth tables and Boolean expressions. Combinational Circuits: Design Procedures, Half Adder, Full Adder, Half Subtractor, Full Subtracor, Multiplexers, Demultiplexers, Decoder, Encoder, Comparators, Code Converters. TEST	Spread Sheet: Elements of Electronics Spread Sheet, Applications, Creating and Opening of Spread Sheet, Menus, Manipulation of cells: Enter texts numbers and dates, Cell Height and Widths, Copying of cells, Mathematical, Statistical and Financial function, Drawing different types of charts, Sort and Filter Data. TEST	Dynamic Memory Management : Pointers , new and delete operator, Array of Pointers to objects, this Pointer ,Passing parameters to functions by reference & Pointers . TEST

NOV	Software testing strategies: unit testing, integration testing, V and V , System testing, Alpha and Beta testing. Black box, white box testing. Cyclomatic Complexity. Software Implementation and Maintenance: Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics. TEST REVISION	Sequential Circuits: Basic Flip-Flops and their working. Synchronous and Asynchronous Flip –Flops, Triggering of FlipFlops, Clocked RS, D Type, JK, T type and Master-Slave Flip-Flops. State Table, State Diagram and State Equations. Flip-flops characteristics & Excitation Tables. Sequential Circuits: Designing registers –Serial-In Serial-Out (SISO), Serial-In Parallel-Out (SIPO), Parallel-In Serial-Out (PISO) Parallel-In Parallel-Out (PIPO) and shift registers. TEST REVISION	Presentation Software: Creating, Modifying and enhancing a presentation, Type of presentation views, Using sound, Animation, Working with Objects, Printing. TEST REVISION	Polymorphism : Operators in C++ , Precedence and Associativity Rules, Operator Overloading , Unary & Binary Operator overloading TEST REVISION