

## Lesson Planning for the semester started w.e.f. October 2021

**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BCA - I Semester

**Subject:** Logical Organisation of Computers-I

| Month    | Topic/chapter covered  | Test/assignment         |
|----------|--|-------------------------|
| October  | Information Representation: Number Systems, Binary Arithmetic, Fixed-point and Floating-point representation of numbers, BCD Codes, Error detecting and correcting codes, Character Representation – ASCII, EBCDIC.      | 1st Assignment          |
| November | Binary Logic: Boolean Algebra, Boolean Theorems, Boolean Functions and Truth Tables, Canonical and Standard forms of Boolean functions, Simplification of Boolean Functions – Venn Diagram, Karnaugh Maps.               | Surprise Test           |
| December | Digital Logic: Basic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. implementations of digital circuits, Combinational Logic – Characteristics, Design Procedures, analysis procedures. | 2nd Assignment and Test |
| January  | Combinational Circuits: Half-Adder, Full-Adder, Half-Subtractor, Full-Subtractor, Encoders, Decoders, Multiplexers, Demultiplexers, Comparators, Code Converters.  | Test                    |

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**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BCA - I Semester

**Subject:** Computer and Programming Fundamentals

| Month    | Topic/chapter covered   | Test/assignment         |
|----------|---|-------------------------|
| October  | Computer Fundamentals: Definition, Block Diagram along with its components, characteristics & classification of computers, Applications of computers in various fields.<br>Memory: Concept of primary & secondary memory, RAM, ROM, types of ROM, flash memory, Secondary storage devices: Sequential & direct access devices viz. magnetic tape, magnetic disk, CD, DVD.   | 1st Assignment          |
| November | Computer hardware & software: I/O devices, definition of software, relationship between hardware and software, types of software.<br>Overview of operating system: Definition, functions of operating system, concept of multiprogramming, multitasking, multithreading, multiprocessing, time-sharing, real time, single-user & multi-user operating system.<br>Computer Virus: Definition, types of viruses, Characteristics of viruses, anti-virus software.   | Surprise Test           |
| December | Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.<br>Techniques of Problem Solving: Flowcharting, algorithms, pseudo code, decision table, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.<br>Computer Languages: Analogy with natural language, machine language, assembly language, high-level language, compiler, interpreter, assembler, characteristics of a good programming language. | 2nd Assignment and Test |
| January  | Searching, Sorting, and Merging: Linear & Binary Searching, Bubble, Selection, and Insertion Sorting, Merging.<br>Overview of Networking: An introduction to computer networking, Network types (LAN, WAN, MAN), Network topologies, introduction to internet and its uses.   | Test                    |

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**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BCA - I Semester

**Subject:** Windows and PC Software

| Month    | Topic/chapter covered  | Test/assignment         |
|----------|--|-------------------------|
| October  | WINDOWS : Introduction to Windows and its Features, Hardware Requirements of Windows. Windows Concepts, Windows Structure, Desktop, Taskbar, Start Menu, My Pictures, My Music, My Documents, Recycle Bin. Managing Files, Folders and Disk. My Computer, Windows Explorer and its Facilities, Using CD, DVD, Pen Drive, Burning CD. Windows Accessories. Entertainment- Media Players, Sound Recorder, Volume Control.  | 1st Assignment          |
| November | ADVANCED FEATURES OF WINDOWS:<br>Managing Hardware & Software - Installation of Hardware & Software, Using Scanner, Web; Camera, Printers. System Tools - Backup, Character Map, Clipboard Viewer, Disk Defragmenter, Drive Space, Scandisk, System Information, System Monitor, Disk Cleanup, Using Windows Update. Browsing the Web with Internet Explorer, Multiple User Features of Windows, Creating and Deleting User, Changing User Password, etc. Accessibility Features of Windows - Sharing Folders and Drives, Browsing the Entire Network, Using Shared Printers. Control Panel & its components | Surprise Test           |
| December | WORKING WITH SPREAD SHEET:<br>Introduction and area of use, Working with Excel, Toolbars, Menus and Keyboard Shortcuts, concepts of Workbook & Worksheets, Using Wizards, Various Data Types, Using different features with Data, Cell and Texts, Inserting, Removing & Resizing of Columns & Rows, Working with Data & Ranges, Different Views of Worksheets, Column Freezing, Labels, Hiding, Splitting etc., Using different features with Data and Text, Cell Formatting including Borders & Shading.  | 2nd Assignment and Test |
| January  | ADVANCED FEATURES OF EXCEL:<br>Multiple Worksheets: Concept, Creating and Using Multiple Worksheets; Use of Formulas, Calculations & Functions, Various types of Functions, Cell Referencing, Absolute and Relative Addressing, Working with Different Chart Types, Chart Wizard, Printing of Workbook & Worksheets with various options, database: Creation, Sorting, Query and Filtering a Database; Creating and Using Macros; Pivot table & Pivot chart  | Test                    |

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**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BCA - I Semester

**Subject:** Programming in C

| Month    | Topic/chapter covered  | Test/assignment         |
|----------|--|-------------------------|
| October  | Overview of C: History of C, Importance of C, Structure of a C Program.<br>Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant.<br>Input/output: Unformatted & formatted I/O function in C, Input functions ( scanf(), getch(), getche(), getchar(), gets() ), Output functions ( printf(), putchar(), puts() ).                          | 1st Assignment          |
| November | Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators. Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity.<br>Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement. | Surprise Test           |
| December | Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue statement. Functions: Definition, prototype, passing parameters, recursion.  | 2nd Assignment and Test |
| January  | Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime. Arrays: Definition, types, initialization, processing an array, passing arrays to functions, Strings & arrays.  | Test                    |

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**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BSc - I Semester

**Subject:** Computer and Programming Fundamentals

| Month    | Topic/chapter covered   | Test/assignment         |
|----------|---|-------------------------|
| October  | Computer Fundamentals: Definition, Block Diagram along with its components, characteristics & classification of computers, Applications of computers in various fields.<br>Memory: Concept of primary & secondary memory, RAM, ROM, types of ROM, flash memory, Secondary storage devices: Sequential & direct access devices viz. magnetic tape, magnetic disk, CD, DVD.   | 1st Assignment          |
| November | Computer hardware & software: I/O devices, definition of software, relationship between hardware and software, types of software.<br>Overview of operating system: Definition, functions of operating system, concept of multiprogramming, multitasking, multithreading, multiprocessing, time-sharing, real time, single-user & multi-user operating system.<br>Computer Virus: Definition, types of viruses, Characteristics of viruses, anti-virus software.   | Surprise Test           |
| December | Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.<br>Techniques of Problem Solving: Flowcharting, algorithms, pseudo code, decision table, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.<br>Computer Languages: Analogy with natural language, machine language, assembly language, high-level language, compiler, interpreter, assembler, characteristics of a good programming language. | 2nd Assignment and Test |
| January  | Searching, Sorting, and Merging: Linear & Binary Searching, Bubble, Selection, and Insertion Sorting, Merging.<br>Overview of Networking: An introduction to computer networking, Network types (LAN, WAN, MAN), Network topologies, introduction to internet and its uses.   | Test                    |

## Lesson Planning for the semester started w.e.f. October 2021

**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BSc - I Semester

**Subject:** PC Software

| Month    | Topic/chapter covered   | Test/assignment         |
|----------|---|-------------------------|
| October  | MS-Windows: Operating system-Definition & functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders. Control panel – display properties, adding and removing software and hardware, setting date and time, screensaver and appearance. Using windows accessories. | 1st Assignment          |
| November | Documentation Using MS-Word - Introduction to Office Automation, Creating & Editing Document, Formatting Document, Auto-text, Autocorrect, Spelling and Grammar Tool, Document Dictionary, Page Formatting, Bookmark, Advance Features of MS-Word-Mail Merge, Macros, Tables, File Management, Printing, Styles, linking and embedding object, Template.  | Surprise Test           |
| December | Electronic Spread Sheet using MS-Excel - Introduction to MS-Excel, Creating & Editing Worksheet, Formatting and Essential Operations, Formulas and Functions, Charts, Advance features of MS-Excel-Pivot table & Pivot Chart, Linking and Consolidation, Database Management using Excel-Sorting, Filtering, Table, Validation, Goal Seek, Scenario.  | 2nd Assignment and Test |
| January  | Presentation using MS-PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides, Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds, Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect.  | Test                    |

## Lesson Planning for the semester started w.e.f. October 2021

**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BSc - III Semester

**Subject:** Web Designing

| Month    | Topic/chapter covered   | Test/assignment         |
|----------|---|-------------------------|
| October  | Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notation.<br>Strings: Introduction, strings, String operations, Pattern matching algorithms  | 1st Assignment          |
| November | Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrix.<br>Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Garbage collection, Applications of linked lists.<br>Algorithm of insertion/ deletion in SLL | Surprise Test           |
| December | Stack: primitive operation on stack, algorithms for push and pop. Representation of Stack as Linked List and array, Stacks applications : polish notation, recursion. Introduction to queues, Primitive Operations on the Queues, Circular queue, Priority queue, Representation of Queues as Linked List and array, Applications of queue. Algorithm on insertion and deletion in simple queue and circular queue  | 2nd Assignment and Test |
| January  | Trees - Basic Terminology, representation, Binary Trees, Tree Representations using Array & Linked List, Basic operation on Binary tree, Traversal of binary trees:- In order, Preorder & post order, Applications of Binary tree. Algorithm of tree traversal with and without recursion.<br>Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs  | Test                    |

## Lesson Planning for the semester started w.e.f. October 2021

**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BSc - III Semester

**Subject:** Software Engineering

| Month    | Topic/chapter covered   | Test/assignment         |
|----------|---|-------------------------|
| October  | 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  | 1st Assignment          |
| November | Feasibility Study, Software Requirement Analysis and Specifications: SRS, Need for SRS, Characteristics of an SRS, Components of an SRS, Problem Analysis, Information gathering tools, Organising and structuring information, Requirement specification, validation and metrics   | Surprise Test           |
| December | 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 | 2nd Assignment and Test |
| January  | Software testing strategies: unit testing, integration testing, V and V , System testing, Alpha and Beta testing. Black box, white box testing. Cyclomatic Complexity.<br>Software Implementation and Maintenance: Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics   | Test                    |



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**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BSc - V Semester

**Subject:** Web Designing

| Month    | Topic/chapter covered  | Test/assignment         |
|----------|--|-------------------------|
| October  | Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic Features; Web Browsers; Web Servers; Hypertext Transfer Protocol; URLs; Searching and Web-Casting Techniques; Search Engines and Search Tools  | 1st Assignment          |
| November | Steps for Developing Website; Choosing the Contents; Home Page; Domain Names; Internet Service Provider; Planning and Designing Web Site; Creating a Website; Web Publishing: Hosting Site   | Surprise Test           |
| December | Introduction to HTML; Hypertext and HTML; HTML Document Features;<br>HTML Tags; Header, Title, Body, Paragraph, Ordered/Unordered Line, Creating Links; Headers; Text Styles; Text Structuring; Text Colors and Background; Formatting Text; Page layouts; Insertion of Text, Movement of Text | 2nd Assignment and Test |
| January  | Images: Types of Images, Insertion of Image, Movement of Image, Ordered and Unordered lists; Inserting Graphics; Table Handling Functions like Columns, Rows, Width, Colours; Frame Creation and Layouts; Working with Forms and Menus; Working with Buttons like Radio, Check Box             | Test                    |

# Lesson Planning for the semester started w.e.f. October 2021

**Institute:** Government College for Girls, Taraori , Karnal

**Teacher :** Ms. Abha Narwal , Assistant Professor, Computer Science Dept.

**Course:** BSc - V Semester

**Subject:** Fundamentals of Database Systems

| Month    | Topic/chapter covered  | Test/assignment         |
|----------|--|-------------------------|
| October  | Basic Concepts – Data, Information, Records and files.<br>Traditional file Based Approach-Limitations of Traditional File Based Approach, Database Approach- Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Advantages and Disadvantages of DBMS  | 1st Assignment          |
| November | Actors on the Scene - Data and Database Administrator, Database Designers, End users Applications Developers and Workers behind the Scene.<br>Database System Architecture – Three Levels of Architecture, Schemas – External, Conceptual and Internal Level, Database Languages – VDL, DDL, SDL, DML, SQL, Mappings – External/ Conceptual and Conceptual/Internal, Instances, Data Independence – Logical and Physical Data Independence | Surprise Test           |
| December | Data Models: High Level, Low Level and Representational – Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Models<br>Entity-Relationship Model – Concepts, Entity Types, Entity Sets, Attributes, Relationships, Constraints, Keys , Degree, Cardinality etc.<br>ER Diagrams of any Database Organization- Inventory System, Payroll System, Reservation System, Online Book Store etc            | 2nd Assignment and Test |
| January  | Classification of Database Management System, Centralized and Client Server architecture<br>Relational Data Model:-Brief History, Terminology in Relational Data Structure, Relations, Properties of Relations, Keys – Primary, Secondary, Composite, Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relations  | Test                    |