**Lesson Planning for the semester started w.e.f. January 2024**

**Institute:** Shri Guru Teg Bahadur Ji Government College, Taraori , Karnal

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

**Course:** BSc - VI Semester

**Subject:** Internet Tchnologies (BCA-364)

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| **Month** | **Topic/chapter covered** | **Test/assignment** |
| January | Internet: Introduction; History; Internet Services; TCP/IP: Architecture, Layers, Protocols; TCP/IP model versus OSI Model; World Wide Web (WWW)- The Client Side, The Server Side, Creating and Searching Information on the Web, Popular Search Engines, URL, HTTP, Web Browsers, Chat & Bulletin Board, USENET & NNTP (Network News Transfer Protocol); Internet vs. Intranet; | 1st Assignment |
| February | TCP, UDP and IP Protocols, Port Numbers; Format of TCP, UDP and IP; IPv4 addressing; The need for IPv6; IPv6 addressing and packet format; TCP Services; TCP Connection Management; Remote Procedure Call; IP Address Resolution- DNS; Domain Name Space; DNS Mapping; Recursive and Iterative Resolution; Mapping Internet Addresses to Physical Addresses: ARP, RARP, DHCP; ICMP; IGMP; | Surprise Test |
| March | Application Layer: Electronic Mail: Architecture; Protocols- SMTP, MIME, POP, IMAP; Web Based Mail; File Access and Transfer: FTP, Anonymous FTP, TFTP, NFS; Remote Login using TELNET; Voice and Video over IP: RTP, RTCP, IP Telephony and Signaling, RSVP; | 2nd Assignment and Test |
| April | Routing in Internet: RIP, OSPF, BGP; Internet Multicasting; Mobile IP; Private Network Interconnection: Network Address Translation (NAT), Virtual Private Network (VPN); Internet Management and SNMP; Internet Security: E-Mail Security; Web Security; Firewall; Introduction to IPSec and SSL; | Sessional |

**Institute:** Shri Guru Teg Bahadur Ji Government College, Taraori , Karnal

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

**Course:** BSc - VI Semester  **Subject:** Operating System-II (BCA-362)

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| **Month** | **Topic/chapter covered** | **Test/assignment** |
| January | Process Synchronization: The Critical Section Problem– Single Process/Two Process Solutions; Semaphores– Types, Implementation, Deadlocks and Starvation; Classical Problems of Synchronization– The Bounded Buffer Problem, The Readers and Writers Problem, The Dining Philosophers Problem, Critical Regions, Monitors Directory Structure: Single Level, Two Level, Tree Structures, Acyclic Graph, General Graph; Directory Implementation, Recovery | 1st Assignment |
| February | Secondary Storage Structure: Disk Structure, Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK; Selection of Disk Scheduling Algorithm; Disk Management; Swap Space Management Network Operating Systems: Remote Login, Remote File Transfer; Distributed Operating System: Data Migration, Computation Migration, Process Migration | Surprise Test |
| March | Linux: Introduction, Features, Architecture, Distributions, Accessing Linux System, Login/Logout/Shutting Down, Comparison of Linux with other Operating Systems, Commands in Linux: General-Purpose Commands, File Oriented Commands, Directory Oriented Commands, Communication Oriented Commands, Process Oriented Commands, Redirection of Input and Output, Pipes | 2nd Assignment and Test |
| April | Linux File System: Types of Files in Linux, File Attributes, Structure of File System, inode, File Permission, File System Components, Standard File System, File System Types, Disk Related Commands Processes in Linux: Introduction, Job Control in Linux using at, batch, corn & time commands The vi editor: Introduction, Modes of vi Editor, Command in vi Editor Shell Programming: Introduction, Shell Variables, Shell Keywords, Operators, Assigning Values to the Variables, I/O in Shell, Control Structures, Creating & Executing Shell Programs in Linux. | Sessional |

**Institute:** Shri Guru Teg Bahadur JiGovernment College, Taraori , Karnal

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

**Course:** BSc - VISemester

**Subject:** Programming in Core Java (BCA-365)

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| **Month** | **Topic/chapter covered** | **Test/assignment** |
| January | Basic Principles of Object Oriented Programming, Introduction to Java, History and Features of Java, Java Virtual Machine (JVM), Java’s Magic Bytecode; The Java Runtime Environment; Basic Language Elements: Lexical Tokens, Identifiers, Keywords, Literals, Comments, Primitive Data types, Operators, Assignments; Input/output in Java: Basics, I/O Classes, Reading Console Input, Control Structures in Java: Decision and Loop Control Statements | 1st Assignment |
| February | Class and Object in Java: Defining Class in Java, Creating Objects of a Class, Defining Methods, Argument Passing Mechanism, Using Class and Objects, Constructors, Nested Class, Inner Class, Abstract Class, Dealing with Static Members; Array & String in Java: Defining an Array, Initializing & Accessing Array, Multi–Dimensional Array, Defining String, Operation on Array and String, Creating Strings using String Class, Creating Strings using StringBuffer Class,; Polymorphism in Java: Basic Concept, Types, Overriding vs. Overloading, Implementation | Surprise Test |
| March | Extending Classes and Inheritance in Java: Benefits of Inheritance, Types of Inheritance in Java, Access Attributes, Inheriting Data Members and Methods, Role of Constructors in Inheritance, Use of “super”; Packages & Interfaces: Basic Concepts of Package and Interface, Organizing Classes and Interfaces in Packages, Defining Package, Adding Classes from a Package to Your Program, CLASSPATH Setting for Packages, Import Package, Naming Convention For Packages , Access Protection in Packages, Standard Packages | 2nd Assignment and Test |
| April | Exception Handling in Java: The Idea behind Exception, Types of Exception, Use of try, catch, finally, throw, throws in Exception Handling, In-built and User Defined Exceptions, Checked and Un-Checked Exceptions, Catching more than one Exception; Applet in Java: Applet Basics, Applet Architecture, Applet Life Cycle, Applet Tag, Parameters to Applet, Embedding Applets in Web page, Creating Simple Applets; GUI Programming: Designing Graphical User Interfaces in Java, Components and Containers, Using Containers, Layout Managers, AWT Components, AWT Classes, AWT Controls, | Sessional |

**Institute:** Shri Guru Teg Bahadur Ji Government College, Taraori , Karnal

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

**Course:** BSc - VI Semester

**Subject:** Web Designing Using Advanced Tools(BCA-361)

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| **Month** | **Topic/chapter covered** | **Test/assignment** |
| January | Interactivity Tool- JavaScript: Introduction, Features, Data types, Operators, Statements, Functions, Event Handling, Use of Predefined Object and Methods, Frames, Windows, Tables, Images, Links Interactivity Tool- VBScript: Introduction, Features, Variables, Data Types, Numeric and Literal Constants, Arrays, Operators, Subroutine Procedures, Function Procedures, Control Statements, Strings, Message and Input Boxes, Date and Time, Event Handlers, Embedding VBScript in HTML | 1st Assignment |
| February | Interactivity Tool- Active Script Pages– Introduction, Features, Client-Server Model, Data Types, Decision Making Statements, Control statements, Use of Various Objects of ASP, Various Techniques of Connecting to Database Other Interactivity Tools- Macromedia Flash, Macromedia Dreamweaver, PHP: Basic Introduction and Features | Surprise Test |
| March | DHTML: Introduction, Features, Events, Dynamic Positioning, Layer Object, Properties of STYLE, Dynamic Styles, Inline Styles, Event Handlers; Cascading Style Sheets (CSS): Basic Concepts, Properties, Creating Style Sheets; Common Tasks with CSS: Text, Fonts, Margins, Links, Tables, Colors; Marquee; Mouseovers; Filters and Transitions; Adding Links; Adding Tables; Adding Forms; Adding Image and Sound; Use of CSS in HTML Documents Linking and Embedding of CSS in HTML Document | 2nd Assignment and Test |
| April | Microsoft FrontPage: Introduction, Features, Title Bar, Menu bar, FrontPage Tool Bar, Style, FontFace and Formatting Bar, Scroll Bars XML: Introduction, Features, XML Support and Usage, Structure of XML Documents, Structures in XML, Creating Document Type Declarations, Flow Objects, Working with Text and Font, Color and Background Properties; | Sessional |

**Institute:** Shri Guru Teg Bahadur Ji Government College, Taraori , Karnal

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

**Course:** BCA - IV Semester

**Subject:** Management Information System (BCA-246)

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| **Month** | **Topic/chapter covered** | **Test/assignment** |
| January | Introduction to system and Basic System Concepts, Types of Systems, The Systems Approach, Information System: Definition & Characteristics, Types of information, Role of Information in Decision-Making, Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS | 1st Assignment |
| February | An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Information requirements & Levels of Management, Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems. | Surprise Test |
| March | Developing Information Systems: Analysis & Design of Information Systems: Implementation & Evaluation, Pitfalls in MIS Development. | 2nd Assignment and Test |
| April | Functional MIS: A Study of Personnel, Financial and production MIS, Introduction to e-business systems, ecommerce – technologies, applications, Decision support systems – support systems for planning, control and decision-making | Sessional |

**Institute:** Shri Guru Teg Bahadur Ji Government College, Taraori , Karnal

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

**Course:** BSc - IV Semester

**Subject:** Operating System (Paper - II)

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| **Month** | **Topic/chapter covered** | **Test/assignment** |
| January | Introduction: operating system, architecture, functions, characteristics, historical evolution, types: Serial batch, multiprogramming, time sharing, real time, distributed and parallel. OS as resource Manager.  Computer system structures: I/O structure, storage structure, storage hierarchy.  Operating system structure: system components, services, system calls, system programs, system structures | 1st Assignment |
| February | Process management: process concepts, process state, process control block, operations, process scheduling, inter process communication.  CPU Scheduling: scheduling criteria, levels of scheduling, scheduling algorithms, multiple processor scheduling. Deadlocks: Characterization, methods of handling, deadlock detection, prevention, avoidance, recovery | Surprise Test |
| March | Storage Management: memory management of single-user and multiuser operating system, partitioning, swapping, paging and segmentation, virtual memory, Page replacement Algorithms, Thrashing.  Process synchronization: critical section problems, semaphores. Mutual exclusion | 2nd Assignment and Test |
| April | Device and file management: Disk scheduling, Disk structure, Disk management, File Systems: Functions of the system, File access and allocation methods, Directory Systems: Structured Organizations, directory and file protection mechanisms | Sessional |

**Institute:** Shri Guru Teg Bahadur Ji Government College, Taraori , Karnal

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

**Course:** BCA - II Semester

**Subject:** Concepts of Operating System (B23-CAP-203)

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| **Month** | **Topic/chapter covered** | **Test/assignment** |
| **February** | Introductory Concepts: Operating System, Functions and Characteristics, Historical Evolution of Operating Systems, Operating System Structure.  Types of Operating System: Real-time, Multiprogramming, Multiprocessing, Batch processing.  Operating System Services, Operating System Interface, Service System Calls, and System Programs.  Process Management: Process Concepts, Operations on Processes, Process States, and Process Control Block. Inter-Process Communication. | 1st Assignment |
| March | CPU Scheduling: Scheduling Criteria, Levels of Scheduling, Scheduling Algorithms, Multiple Processor Scheduling, Algorithm Evaluation.  Synchronization: Critical Section Problem, Semaphores, Classical Problem of Synchronization, Monitors.  Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery. | Surprise Test |
| April | Memory Management Strategies: Memory Management of Single-user and Multiuser Operating Systems, Partitioning, Swapping, Contiguous Memory Allocation, Paging and Segmentation;  Virtual Memory Management: Demand Paging, Page Replacement Algorithms, Thrashing | 2nd Assignment and Test |
| May | Implementing File System: File System Structure, File System Implantation, File Operations, Type of Files, Directory Implementation, Allocation Methods, and Free Space Management.  Disk Scheduling algorithm - SSTF, Scan, C- Scan, Look, C-Look.  SSD Management. | Sessional |