**BCA-I (Sem-2nd)**

**BCA-122 Logical Organization of Computers – II (Theory)**

**Lesson Plan (2022-23)**

**Month of February**

Sequential Logic: Characteristics, Flip-Flops, Clocked RS, D type, JK, T type and Master-Slave flip-flops. State table, state diagram. Flip-flop excitation tables.

**Month of March**

Sequential Circuits: Designing registers – Serial Input Serial Output (SISO), Serial Input Parallel Output (SIPO), Parallel Input Serial Output (PISO), Parallel Input Parallel Output (PIPO) and shift registers. Designing counters – Asynchronous and Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters.

**Month of April**

Memory & I/O Devices: Memory Parameters, Semiconductor RAM, ROM, Magnetic and Optical Storage devices, Flash memory, I/O Devices and their controllers.

**Month of May**

Instruction Design & I/O Organization: Machine instruction, Instruction set selection, Instruction cycle, Instruction Format and Addressing Modes. I/O Interface, Interrupt structure, Program-controlled, Interrupt-controlled & DMA transfer, I/O Channels, IOP.

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**Department of Computer Science**

**BCA-II (Sem-4th)**

**BCA – 244 RELATIONAL DATABASE MANAGEMENT SYSTEM**

**Lesson Plan (2022-23)**

**Month of February**

Relational Model Concepts, Codd's Rules for Relational Model, Relational Algebra: -Selection and Projection, Set Operation, Renaming, Join and Division, Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus**.**

**Month of March**

Functional Dependencies and Normalization: -Purpose, Data Redundancy and Update Anomalies, Functional Dependencies: -Full Functional Dependencies and Transitive Functional Dependencies, Characteristics of Functional Dependencies, Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF).

**Month of April**

SQL: Data Definition and data types, SQL Operators, Specifying Constraints in SQL, Basic DDL, DML and DCL commands in SQL, Simple Queries, Nested Queries, Tables, Views, Indexes, Aggregate Functions, Clauses.

**Month of May**

PL/SQL architecture, PL/SQL and SQL\*Plus, PL/SQL Basics, Advantages of PL/SQL, The Generic PL/SQL Block: PL/SQL Execution Environment, PL/SQL Character set and Data Types, Control Structure in PL/SQL, Cursors in PL/SQL, Triggers in PL/SQL, Programming using PL/SQL.

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**Department of Computer Science**

**PGDCA**

**CS-DE-15 OPERATING SYSTEMS**

**Lesson Plan (2022-23)**

**Month of October**

Introductory Concepts: Operating system functions and characteristics, historical evolution of operating systems, Real time systems, Distributed systems, O/S services, system calls, system programs.

**Month of November**

CPU Scheduling: Process concept, Process scheduling, scheduling criteria, Scheduling algorithms.

**Month of December**

Deadlocks: Deadlock characterization, Deadlock prevention and avoidance, Deadlock detection and recovery. Storage Management: Storage allocation methods: Single contiguous allocation, Multiple contiguous allocation.

**Month of January**

Paging; Segmentation, Virtual memory concepts, Demand Paging, Page replacement Algorithms, Thrashing. File Systems: File concept, File access and allocation methods.

**Month of February**

Directory Systems: Structured Organizations. Hardware Management: Disk scheduling policies. Protection: Goals of protection, principles of protection, domain of protection, access matrix & its implementation, revocation of access rights.

**Month of March**

Windows: Features of Windows; Various versions of Windows & its use; My Computer & Recycle bin; Desktop, Icons and Windows Explorer; Dialog Boxes & Toolbars; Working with Files & Folders.

**Month of December**

simple operations like copy, delete, moving of files and folders from one drive to another, Accessories and Windows Settings using Control Panel. Linux: Linux architecture, Features of Linux, Simple Commands in Linux.

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**B.Sc.-I(Sem-2nd)**

**PAPER-II Logical Organization of Computers**

**Lesson Plan (2022-23)**

**Month of February**

Information Representation: Number Systems, Binary Arithmetic, Fixed-point and Floatingpoint representation of numbers, BCD Codes, Error detecting and correcting codes, Character Representation – ASCII, EBCDIC.

**Month of March**

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.

**Month of April**

Digital Logic: Basic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. Combinational Circuits: Half-Adder, Full-Adder, HalfSubtractor, Full-Subtractor, Encoders, Decoders, Multiplexers, Demultiplexers, Comparators, Code Converters.

**Month of May**

Sequential Logic: Characteristics, Flip-Flops, Clocked RS, D type, JK, T type and Master-Slave flip-flops. State table, state diagram. Flip-flop excitation tables Shift registers: serial in parallel out and parallel in parallel out. Designing counters – Asynchronous and Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters

**Dr. Neeru Kamboj**

**Department of Computer Science**

**B.Sc.-II(Sem-4th)**

**PAPER-II : Operating System**

**Lesson Plan (2022-23)**

**Month of February**

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.

**Month of March**

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.

**Month of April**

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.

**Month of May**

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.

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**Department of Computer Science**

**Department of Computer Science**

**Class: B.COM I**

**Subject: E-commerce**

**February**

Introduction to internet: concept, application and uses of Internet, Internet services.

**March**

Information Technology and Business: concepts of data, information and information system, effects of IT on business; Types of information system: Transaction Processing System (TPS), Management Information System (MIS).

**April**

Introduction to E-commerce; e-commerce and world wide web; e-commerce application services; ecommerce models: B2B, B2C, C2C; electronic data interchange: benefits, components of EDI, EDI implementation, security issues in e-commerce.

**May**

M-commerce and e-governance: an overview

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