**BCA-I (Sem-IInd)**

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

**Lesson Plan(2021-22)**

**Month of April**

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 May**

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 June**

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

**Month of July**

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.

**Neeru Kamboj**

**Department of Computer Science**

**BCA-II (Sem-IVth)**

**BCA – 244 RELATIONAL DATA BASE MANAGEMENT SYSTEM**

**(Theory)**

**Lesson Plan(2021-22)**

**Month of April**

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 May**

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 June**

SQL: Data Definition and data types, Specifying Constraints in SQL, Schema, Change statement, Basic Queries in SQL, Insert, Delete and Update Statements, Views.

**Month of July**

PL/SQL-Introduction, 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.

**Neeru Kamboj**

**Department of Computer Science**

**BCA-III (Sem-VIth)**

**BCA – 362 OPERATING SYSTEM-II (Theory)**

**Lesson Plan(2021-22)**

**Month of April**

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.

**Month of May**

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, and Process Migration.

**Month of June**

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.

**Month of July**

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, and Creating & Executing Shell Programs in Linux.

**Neeru Kamboj**

**Department of computer science**

**BSc.-III (Sem-VIth)**

**PAPER – V (RELATIONAL DATABASE MANAGEMENT SYSTEM) (Theory and Practical)**

**Lesson Plan(2021-22)**

**Month of April**

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 May**

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 June**

SQL: Data Definition and data types, Specifying Constraints in SQL, Schema, Change statement, Basic Queries in SQL, Insert, Delete and Update Statements, Views.

**Month of July**

PL/SQL-Introduction, 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.

**Neeru Kamboj**

**Department of Computer Science**

**BSc.-I(Sem-IInd)**

**PAPER-II Logical Organization of Computers (Theory)**

**Lesson Plan(2021-22)**

**Month of April**

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.

**Month of May**

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 June**

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

Comparators, Code Converters.

**Month of July**

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**