**Mehr Chand Mahajan DAV College for Women, Sector – 36A, Chandigarh**
**Monthly Teaching Plans (Odd Semester)**
**Session – (2022-23)**

**Name of the Teacher/s  Mandeep K. Chawla**
**Department: Department of Computer Science & Applications**
**Class: BCA-II (3rd Semester)**                                   **Section (s):  A & B**
**Subject: Information System Design and Implementation (BCA-16-303)**

| S.No. | Date (Monthly) | | Topics to be Covered | Academic Activity Undertaken* |
|---|---|---|---|---|
| | **From** | **To** | | |
| 1 | 13.8.22 | 31.8.22 | Systems Concepts and Information Systems Environment: Definition and characteristics, Elements of a system Environment. Types of systems. The System Development Life Cycle: Introduction to various phases. The Role of System Analyst, Skills of a System Analyst. | PPT, Assignments, Case study discussions, class test |
| 2 | 1.9.22 | 30.9.22 | System Planning and the Initial Investigation: Bases for planning in system analysis, Initial investigation, determining the users information requirements, Problem definition and Project Initiation, Background Analysis, Fact Finding, Fact Analysis, Determination of Feasibility. Information Gathering: Introduction, Information Gathering tools: Review of Literature, Procedures and forms. On -site observation. Interviews and questionnaires. Tools of Structured Analysis: Various tools of structured analysis: Data flow diagram (DFD), Data Dictionary, Decision tree and structured English, Decision table, Pros and cons of each tool. | PPT, Assignments, Casestudy discussions, Brain Storming, Discussions, Related Material, class test |
| 3 | 1.10.22 | 31.10.22 | Feasibility Study: System Performance-statement of Constraints, Identification of Specific System Objectives, description of Outputs. Feasibility Study – Feasibility considerations, Steps in feasibility analysis. Feasibility Report. System Design: The Process of Design-Logical and Physical Design, Design methodologies: Structured design, Functional Decomposition | PPT, Assignments, , Peer Learning, Related Material, class test |
| 4 | 1.11.22 | Till the end of semester | System Testing and Quality Assurance: Testing, System testing, Quality assurance and its goals in its system life cycle, Levels of quality assurance, Trends intesting. Implementation and Software Maintenance, User Training, Hardware and Software Selection | Assignments, Peer Learning, Related Material, mid-term exam |

**Name of the Teacher/s    Deeksha Gupta**
**Department    Computer Science and Applications**
**Class: <u>BCA-II  (3<sup>rd</sup> Semester)</u>**
**Subject Computer Oriented Numerical Method (BCA-16-304)    Section (s)  A & B**

| S. No | Date (Monthly) | | Topics to be Covered | Academic Activity Undertaken* |
|---|---|---|---|---|
| | **From** | **To** | | |
| 1 | 13.8.22 | 31.8.22 | Data Representation and Computer Arithmetic, Storage of Integer Numbers, Normalization and their consequences, Errors, Measures of Accuracy, Error | Lecture method Periodic Test Assignments PPT, Quiz <br><br> Online Content Question Bank |
| 2 | 1.9.22 | 30.9.22 | **Solution of Non-Linear Equations:** Bisection Method, False-Position Method, Secant Method, Newton - Raphson Methods, Zeros of a polynomial using Birge Vieta Method, Convergences of every method <br> **Simultaneous Linear Equations:** Gauss – Elimination Method, Gauss-Jordan Method, Concept of Pivoting, Iterative Method: Gauss-Seidal Method | Lecture method Periodic Test Assignments, PPT Online Source and Content, Quiz Question Bank |
| 3 | 1.10.22 | 31.10.22 | **Interpolation:** Lagrange Interpolation, Inverse Interpolation, Finite Differences, Difference Tables, Newton's Method of Interpolation <br> **Numerical Integration:** Newton-Cotes Integration  Formulae: Trapezoidal Rule, Simpson's 1/3rd Rule, Simpson's 3/8th Rule. | Lecture method Periodic Test Assignments PPT, Quiz Online Content Question Bank |
| 4 | 1.11.22 | Till the end of semester | **Approximation:** Taylor Series Representation, Chebyshev Polynomials. <br> **Solution of Ordinary Differential Equations**: Introduction, Euler's Method, Runge–Kutta Methods: 2nd order & 4th order, Predictor Corrector Methods: Modified Euler's Method. | Lecture method Periodic Test Assignments Remedial classes PPT, Quiz Online Content Question Bank |

**Name of the Teacher/s Ms Punam/ Ms.Deepti Sharda**
**Department Computer Science & Applications**
**Class BCA-II (3ʳᵈ Semester)**                                 **Section (s): A & B**
**Subject Data Structures (BCA-16-305)**

| S.No. | Date (Monthly) | | Topics to be Covered | Academic Activity Undertaken* |
|-------|------|------|----------------------|-------------------------------|
|       | **From** | **To** |                  |                               |
| 1 | 13 .8.22 | 31.8. 22 | **Basic Concepts:** Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures <br> **Arrays**: Introduction, Types of Arrays, Memory representation, Applications and operations. | Lecture Method, Reading & Discussion, Presentation, Programs Discussion, Online Resources |
| 2 | 1.9.22 | 30.9.22 | **Searching**: Binary and Linear Search <br> **Sorting**: Bubble sort <br> **Linked List**: Operations: -traversing, searching, inserting, deleting, Operations on header linked list, circular linked list, doubly linked list, memory representation, Applications, polynomial manipulation. | Lecture Method, Reading & Discussion, Presentation, Programs Discussion, Online Resources |
| 3 | 1.10.22 | 31.10.22 | **Stacks**: Introduction, memory representation, Applications and operations, Quick sort <br> **Queue**: Introduction, Types, Memory Representation and Applications. <br> **Trees** – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, | Lecture Method, Reading & Discussion, Presentation, Programs Discussion, Class Test, Assignment Submission |
| 4 | 1.11.22 | Till the end of semester | Binary Tree Traversal, Searching, Insertion and deletion in Binary trees, Binary Search tree. <br> **Graphs**: Introduction, Memory Representation, Graph Traversal (DFS and BFS) <br> **Sorting**: Insertion sort, Selection sort, Merge Sort. Comparison of various Searching and Sorting algorithms. | Lecture Method, Online Resources Reading& Discussion, Programs Discussion, Presentation, Assignment submission |

**Name of the Teacher/s  Mandeep K. Chawla**
**Department: Department of Computer Science & Applications**
**Class: BCA-II (4th Semester)**                          **Section (s):  A & B**
**Subject: Software Project Management (BCA-16-403)**

| S. No. | Date (Monthly) | | Topics to be Covered | Academic Activity toUndertake* |
|---|---|---|---|---|
| | **From** | **To** | | |
| 1 | 16.01.23 | 31.01.23 | Introduction to project management, role of a project manager, Software economics | Lecture Method, PPT, notes-giving, assignment |
| 2 | 1.2.23 | 28.2.23 | Project phases and product life cycles, Principles of modern software management, Project Management Framework, Software Tools, Staff Acquisition and Team formation, Workflows and Checkpoints, Integration Management | Lecture Method, PPT, Class test, notes-giving, Group revisions |
| 3 | 1.3.23 | 31.3.23 | Project monitoring and controlling, Scope Management, WBS, Process instrumentation and seven core metrics, Iterative process planning, Project organizations and responsibilities | Lecture Method, PPT, Class tests, example case discussion, Group revisions, notes-giving, mid-term exam (tentative) |
| 4 | 1.4.23 | Till the end of semester | Process automation, Project Scheduling, Project Network Diagrams, Gantt charts, Project Cost Management, Cost Budgeting andControl | Lecture Method, PPT, MCQ, Group revisions |

**Name of the Teacher/s    Deeksha Gupta**
**Department    Computer Science and Applications**
**Class: <u>BCA-II  (4<sup>th</sup> Semester)</u>**
**Subject: Operating System concepts & Linux  (BCA-16-404)      Section (s)  A & B**

| S.No | Date (Monthly) | | Topics to be Covered | Academic Activity Undertaken* |
|---|---|---|---|---|
| | **From** | **To** | | |
| 1 | 16.01.23 | 31.01.23 | • **Operating Systems (OS):** Introduction, its needs andservices, Types of OS <br> • **Process Management:** Introduction to Process, PCB,Process States <br> • **CPU Scheduling:** Scheduling Criteria, Algorithms | Lecture method Periodic Test Assignments PPT, Quiz, Question Bank, Online Sources and Content |
| 2 | 1.2.23 | 28.2.23 | • **Introduction to Linux**: Linux's shell, Kernel, Features, History, Minimum system requirements, Boot and Rootdisks, Terminal      Handling commands,          wildcards,Environment variables. <br> • **Deadlocks** | Lecture method Periodic Test Assignments, PPT, Quiz, Question Bank Online Content |
| 3 | 1.3.23 | 31.3.23 | • **Understanding I/O Redirection and Piping:** Introduction, cut, paste, sort, tee; Regular Expressions and grep <br> • **Memory Management, File system:** <br> • Introduction to common types of files, Filenames, directories, Absolute and relative filenames, creating files and directories, listing files (ls), pwd, mv, cp, moving directories, removing files and directories, using wildcards with files and directories, File and <br> • directory, Changing group ownership, umask settings | Lecture method Periodic Test Assignments, PPT,Online Source and Content, Quiz Question Bank |
| 4 | 1.4.23 | Till the end of semester | • **Virtual Memory:** Demand paging, Introduction to Page Replacement algorithms: FIFO, OPT and LRU <br> • **Process Management:** Types of processes, ps, bg, fg, nice, kill. <br> • **Understanding System Administration activities:** Superuser (su) command, taking backups using tar, Managing disk space, Mounting and Un-mounting filesystem, Managing users, Managing printers <br> • **Vi editor** | Lecture method Periodic Test Assignments PPT, Seminar Online Source andContent, Quiz Question Bank |

**Name of the Teacher- Ms Deepti Sharda & Ms Punam**

**Department Computer Science & Applications**

**Class BCA-II (4th Semester)**
**Subject Database Management (BCA-16-405)**          **Section (s): A & B**

| S.No | Date (Monthly) From | To | Topics to be Covered | Academic Activity Undertaken* |
|------|------|------|----------------------|------------------------------|
| 1 | 16.01.23 | 31.01.23 | Basic Concepts: A Historical perspective, File Systems vs. DBMS, Characteristics of the Data Base Approach, Abstraction and Data Integration, Database users, Advantages and Disadvantages of DBMS | Lecture method Periodic Test Assignments PPT, Quiz, Question Bank, Online Sources and Content |
| 2 | 1.2.23 | 28.2.23 | Implication of Database approach. Data Base Systems Concepts and Architecture: Data Models, Schemas and Instances, DBMS architecture and Data Independence, Data base languages & Interfaces, DBMS functions and component modules. Relational Data Model : Relational model concepts, Integrity constraints over Relations, Relational Algebra - Basic Operations. Conventional Querying database tables, Conditional retrieval of rows, Working with Null Values, Matching a pattern from a table, ordering the result of a query, **Understanding SQL-II:** Querying Multiple Tables using Equi-Joins, Cartesian Joins, Outer Joins, Self-Joins, SET Operators: Union, Intersect, Minus; Introduction to Nested Queries | Lecture method Periodic Test Assignments, PPT, Quiz, Question Bank Online Content |
| 3 | 1.3.23 | 31.3.23 | Data Models : An overview of Network and Hierarchical Data Models. **RDBMS:** Terminology, The 12 Rules (Codd's Rule) for an RDBMS. Aggregate Functions, Grouping the Result of a Query, creation and deletion of Views, Managing privileges with Grant and Revoke Command, COMMIT and ROLLBACK, Functions: Character Functions, Date Functions, Group Functions Relational Data Base Design : Functional Dependencies, Decomposition, Desirable properties of decomposition, Normal forms based on primary keys **PL/SQL:** Introduction to PL/SQL, The Advantage of PL/SQL, PL/SQL Block Structure, PL/SQL Architecture, Fundamentals of PL/SQL, PL/SQL Data Types, Variables and Constants, Scope and Visibility of a Variable, Assignments and Expressions, Operator Precedence, Conditional and Iterative Control | Lecture method Periodic Test Assignments, PPT,Online Source and Content, Quiz Question Bank |
| 4 | 1.4.23 | Till the end of semester | Cursor Management in PL/SQL, Implicit/explicit Cursor Attributes, Exception Handling in PL/SQL; Predefined Exceptions, User Defined Exceptions, Database Trigger, types of triggers, dropping triggers, storage for triggers. Entity Relationship Model: Entity Types, Entity Sets, Attributes & Keys, Relationships, Relationship Types, Roles and Structural Constraints, Design issues, weak entity types, ER Diagrams. Design of an E-R Database Schema, Reduction of an E-R Schema to Tables. | Lecture method Periodic Test Assignments PPT, Seminar Online Source and Content, Quiz Question Bank |