Lesson Plan (Odd Semester)

Indira Gandhi National College, Ladwa

Name: Mrs. Jyoti **Class:** B.A. I / B.Sc. 1st Year (Sem.-I) Major

Subject: COMPUTER SC. **PAPER I: Problem Solving through C**

SEMESTER: I **SESSION: 2023-24**

Month	Topic / Chapter Covered	Other activities
September	Overview of C: History, Importance, Structure of C Program, Character Set, Constants and Variables, Identifiers and Keywords, Data Types, Assignment Statement, Symbolic Constant. Input/output: Formatted I/O Function-, Input Functions viz: scanf(), getch(), getche(), getchar(), gets(), outputfunctionsviz.printf(),putch(),putchar(), puts().	
October	Operators & Expression: Arithmetic, Relational, Logical, Bitwise, Unary, Assignment, Conditional Operators and Special Operators Operator Hierarchy; Arithmetic Expressions, Evaluation of Arithmetic Expression, Type Casting and Conversion. Decision making with if statement, if- else statement, nested if statement, else-if ladder, switch and break statement, goto statement, Looping Statements: for,. while, and do- while loop, jumps in loops..	Assignment-I Class Test Problems Discussion
November	Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays - Declaration, Initialization and Memory representation. Functions: definition, prototype, function call,passingargumentstoa function: call by value; call by reference, recursive functions. Strings:Declaration andInitialization,StringI/O,ArrayofStrings, String Manipulation Functions: String Length, Copy, Compare; Concatenate etc., Search for a Substring.	Assignment-II Problems Discussion

Lesson Plan (Odd Semester)

Indira Gandhi National College, Ladwa

Name: MS. HARDEEP KAUR **Class:** B.A. /B.Sc. I YEAR (Sem.-I) Minor

Subject: COMPUTER SC. **PAPER I : Basics of Computer Science(B23-CSE-103)**

SEMESTER: I **SESSION:** 2023-24

Month	Topic / Chapter Covered	Other activities
September	Introduction to Computers: Definition of Computers, History and Generations of Computers, Characteristics of computer, Classification of Computers. Fundamental Block diagram of Computer :CPU ,Input& Output Unit.	Problems Discussion
October	Software: Definition of Software, Types of Software-System software, Application software and Utility software. Types of Computer Languages, Assemblers, Interpreters, Compiler.	Assignment-I Class Test Problems Discussion
November	Introduction to Operating Systems: Types of Operating System, Functions of Operating System. Windows: Introduction to Windows, Starting Windows, Desk Top, Task Bar, Opening and closing applications, icons- creating, renaming and removing. Date and Time setting, Working with files and folders-creating, deleting, opening, finding, copying ,moving ,and renaming.	Assignment-II Problems Discussion
December	Networking: Concept ,Basic Element sofa Communication System, Data Transmission Media, LAN,MAN,WAN. Introduction of Internet and WWW, Basic working of a Web Browser, Introduction to popular web browsers.	Revision & Problems discussion

Lesson Plan (Odd Semester)
Indira Gandhi National College, Ladwa

Name: Mrs. Jyoti **Class:** B.A. / B.Sc. II YEAR (Sem.-III)

Subject: COMPUTER SC. **PAPER I: DATA STRUCTURES**

SEMESTER: III **SESSION:** 2023-24

Month	Topic / Chapter Covered	Other activities
September	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.Strings: Introduction, strings, String operations Pattern matching algorithms. Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrix.	Problems Discussion
October	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. Algorithm of insertion/ deletion in SLL stack: primitive operation on stack, algorithms for push and pop. Representation of Stack as Linked List and array,	Assignment-I Class Test Problems Discussion
November	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. Trees - Basic Terminology, representation, Binary Trees.	Assignment-II Problems Discussion
December	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. Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs	Revision & Problems discussion

Lesson Plan (Odd Semester)

Indira Gandhi National College, Ladwa

Name: Mrs. Jyoti
Class: B.A. / B.Sc. II YEAR (Sem.-III)
Subject: COMPUTER SC.
PAPER II: SOFTWARE ENGINEERING
SEMESTER: III
SESSION: 2023-24

Month	Topic / Chapter Covered	Other activities
September	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	Problems Discussion
October	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 metricsStructured Analysis and Tools: Data Flow Diagram, Data Dictionary	Assignment-I Class Test Problems Discussion
November	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.** Software testing strategies: unit testing, integration testing, V and V	Assignment-II Problems Discussion
December	System testing, Alpha and Beta testing. Black box, white box testing. Cyclomatic Complexity. Software Implementation and Maintenance: Type of maintenance Management of Maintenance, Maintenance Process maintenance characteristics.	Revision & Problems discussion

Lesson Plan (Odd Semester)

Indira Gandhi National College, Ladwa

Name: Ms. Hardeep kaur **Class:** B.A. / B.Sc III YEAR (Sem.-V)

Subject: COMPUTER SC. **PAPER I: FUNDAMENTALS OF DATABASE SYSTEMS**

SEMESTER: V **SESSION:** 2023-24

Month	Topic / Chapter Covered	Other activities
September	Basic Concepts – Data, Information, Records and files. 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.	Problems Discussion
October	Actors on the Scene - Data and Database Administrator, Database Designers, End users Applications Developers and Workers behind the Scene. 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. Data Models: High Level, Low Level and Representational – Records- based Data Models	Assignment-I Class Test Problems Discussion
November	Object-based Data Models, Physical Data Models and Conceptual Models Entity-Relationship Model – Concepts, Entity Types, Entity Sets Attributes, Relationships, Constraints, Keys , Degree, Cardinality etc. ER Diagrams of any Database Organization-Inventory System, Payroll System, Reservation System, Online Book Store etc. Classification of Database Management System, Centralized and Client Server Architecture Relational Data Model:-Brief History,	Assignment-II Problems Discussion
December	Terminology in Relational Data Structure, Relations, Properties of Relations. Keys – Primary, Secondary, Composite, Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relations.	Revision & Problems discussion

Lesson Plan (Odd Semester)

Indira Gandhi National College, Ladwa

Name: MS. HARDEEP KAUR **Class:** B.A. III YEAR (Sem.-V)

Subject: COMPUTER SC. **PAPER II:** WEB DESIGNING

SEMESTER: V **SESSION:** 2023-24

Month	Topic / Chapter Covered	Other activities
September	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	Problems Discussion
October	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; Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML Tags; Header, Title, Body	Assignment-I Class Test Problems Discussion
November	Tags: 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 Images: Types of Images, Insertion of Image, Movement of Image,	Assignment-II Problems Discussion
December	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;	Revision & Problems discussion

Lesson Plan (Odd Semester)

Indira Gandhi National College, Ladwa

Name: Mrs. Jyoti
Class: B.A. / B.Sc. II YEAR (Sem.-III)
Subject: COMPUTER SC.
PAPER II: SOFTWARE ENGINEERING
SEMESTER: III
SESSION: 2023-24

Month	Topic / Chapter Covered	Other activities
September	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	Problems Discussion
October	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 metricsStructured Analysis and Tools: Data Flow Diagram, Data Dictionary	Assignment-I Class Test Problems Discussion
November	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.** Software testing strategies: unit testing, integration testing, V and V	Assignment-II Problems Discussion
December	System testing, Alpha and Beta testing. Black box, white box testing. Cyclomatic Complexity. Software Implementation and Maintenance: Type of maintenance Management of Maintenance, Maintenance Process maintenance characteristics.	Revision & Problems discussion

Gandhi National College, Ladwa

Name: Mrs. Jyoti | Class: B.A. / B.Sc. II YEAR (Sem.-III)

Subject: COMPUTER SC. | PAPER I: DATA STRUCTURES

SEMESTER: III | SESSION: 2023-24

Month	Topic / Chapter Covered	Other activities
September	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.Strings: Introduction, strings, String operations Pattern matching algorithms. Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse matrix.	Problems Discussion
October	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. Algorithm of insertion/ deletion in SLL stack: primitive operation on stack, algorithms for push and pop. Representation of Stack as Linked List and array,	Assignment-I Class Test Problems Discussion
November	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. Trees - Basic Terminology, representation, Binary Trees.	Assignment-II Problems Discussion
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Indira Gandhi National College, Ladwa

Name: Ms. Hardeep kaur **Class:** B.A. / B.Sc III YEAR (Sem.-V)

Subject: COMPUTER SC. **PAPER I:** FUNDAMENTALS OF DATABASE SYSTEMS

SEMESTER: V **SESSION:** 2023-24

Month	Topic / Chapter Covered	Other activities
September	Basic Concepts – Data, Information, Records and files. 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.	Problems Discussion
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November	Object-based Data Models, Physical Data Models and Conceptual Models Entity-Relationship Model – Concepts, Entity Types, Entity Sets Attributes, Relationships, Constraints, Keys , Degree, Cardinality etc. ER Diagrams of any Database Organization-Inventory System, Payroll System, Reservation System, Online Book Store etc. Classification of Database Management System, Centralized and Client Server Architecture Relational Data Model:-Brief History,	Assignment-II Problems Discussion
December	Terminology in Relational Data Structure, Relations, Properties of Relations. Keys – Primary, Secondary, Composite, Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relations.	Revision & Problems discussion

Indira Gandhi National College, Ladwa

Name: MS. HARDEEP KAUR **Class:** B.A. III YEAR (Sem.-V)

Subject: COMPUTER SC. **PAPER II:** WEB DESIGNING

SEMESTER: V **SESSION:** 2023-24

Month	Topic / Chapter Covered	Other activities
September	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	Problems Discussion
October	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; Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML Tags; Header, Title, Body	Assignment-I Class Test Problems Discussion
November	Tags: 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 Images: Types of Images, Insertion of Image, Movement of Image,	Assignment-II Problems Discussion
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