

**GOVT. POST GRADUATE NEHRU COLLEGE,**  
**JHAJJAR** Department of Computer Sc(2025-26)

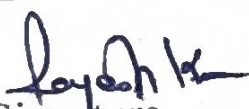
**Lesson Plan 2025-2026(ODD SEM)**

Class MSc. Computer Semester -I

Name of Teacher...Rajesh Kumar

Subject/Paper-dm

| Sr. No. | Week Days | Subject Matter/ Syllabus  |
|---------|-----------|---|
| Unit-1  | Aug       | Sets: Sets, Subsets, Equal Sets Universal Sets, Finite and Infinite Sets. Operation on Sets, Union, Intersection and Complements of Sets. Cartesian Product, Cardinality of Set, Simple Applications. Relations and functions: Properties of Relations, Equivalence Relation, Partial Order Relation, Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions. |
| Unit-2  | sept      | UNIT – II Propositional Logic: Proposition logic, basic logic, Logical Connectives, truth tables, tautologies, contradiction, Logical implication, Logical equivalence, Normal forms, Theory of Inference and deduction, Predicate Calculus: Predicates and quantifiers, Mathematical Induction.  |
| Unit-3  | oct       | UNIT – III Matrices: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint and Inverse of a matrix, Determinants: Definition, Minors, Cofactors, Properties of Determinants, Applications of determinants in finding area of triangle, Solving a system of linear equations..   |
| Unit-4  | Nov       | Introduction to defining language, Kleene Closure, Arithmetic expressions, Chomsky Hierarchy, Regular expressions, 4   Page Conversion of regular expression to Finite Automata, NFA, DFA, Conversion of NFA to DFA, FA with output: Moore machine, Mealy machine.  |

  
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**GOVT. POST GRADUATE NEHRU COLLEGE,**  
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**Lesson Plan 2025-2026(ODD SEM)**

Class BCA Sem 3

Name of Teacher... **Rajesh Kumar**

Subject Paper-OS

| Sr. No. | Week Days | Subject Matter/ Syllabus   |
|---------|-----------|--|
| Unit-1  | Aug       | Introduction to Operating Systems: Objectives and Characteristics. Classification: Batch, Multi programming, Multi-processing, Multi-tasking, Time-sharing, Distributed, Network and Real time Operating systems. System Calls and Services. Functions and Structures: Operating System Functions- Process management, Memory management, Secondary storage management, I/O management, File management. Protection and Security. Structures- Simple Structure, Monolithic structure, Layered approach, Microkernel, Exokernel and Virtual Machines.   |
| Unit-2  | sept      | Process Management and Scheduling: Process concept- Process State Model, Process Control Block and Threads. Process Scheduling- Scheduling Queues, Schedulers and Context Switch. Operations on Processes, Cooperating processes and Inter-Process Communication. Process Scheduling: Scheduling Criteria, Scheduling Algorithms: Single Processor Scheduling: FCFS, SJF, Round Robin, Multi Feedback Queue. Multiple Processor Scheduling and Real Time scheduling. Scheduling Algorithm Evaluation.  |
| Unit-3  | oct       | Memory Management: Concepts of Memory Management, Logical and Physical address space, Swapping, Memory allocation: Contiguous and Non-Contiguous. Paging: Hardware Support. Page Map Table and Protection. Segmentation: Hardware Support and Protection and Sharing. Virtual Memory: Need of Virtual Memory, Demand paging, Pure Demand Paging. Handling page faults, Performance of Demand Paging. Page replacement Algorithms and Allocation of Frames: Allocation algorithms and Global vs Local Allocation, Thrashing.  |
| Unit-4  | Nov       | I/O Management: Basic I/O Devices, Types of I/O Devices: Block and Character Devices. I/O Software: Device Independent I/O, User Space I/O and Kernel I/O Software. Device Controllers, Device Drivers and Interrupt Handlers. Communication Approaches to I/O Devices: Special Instruction I/O, Memory Mapped I/O and Direct Memory Access (DMA). Secondary Storage Structure: Disk Structure and Disk Scheduling Algorithms. File System Interface: File Concept: Attributes, Operations and Types, File Access Methods: Sequential Access, Direct Access and Indexed Sequential. Free Space Management, Directory Structures: Single Level, Two level and Tree Structured, File Protection and Sharing. |

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*Rajesh Kumar*

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**Lesson Plan (ODD SEM)**

*Class MSc. Computersc Semester -I*

Name of Teacher **Rajesh Kumar**

Subject/Paper-DBMS

| Sr. No. | Week Days | Subject Matter/ Syllabus   |
|---------|-----------|--|
| Unit-1  | AUG       | Introduction: Characteristics of database approach, data models, DBMS architecture and data independence. Database Languages, Classification of DBMS. Database Users and Administrator. DBMS Environment: Database Access for applications Programs, Transaction Management, Database system Structure, Storage Manager, Query Processor. E-R Modeling: Entity types, Entity set, attribute and key. Relationships, Relation types. Roles and Structural constraints, Weak entities, Enhanced ER Model.                  |
| Unit-2  | Sept      | Relational Model: Introduction to the Relational Model, Integrity Constraint over Relations, Enforcing Integrity constraints, Querying relational data, Introduction to views, Destroying/altering Tables and Views. Relational Algebra and Calculus: Relational Algebra, Set operations, Selection and projection, renaming, Joins, Division, Examples of Algebra overviews, Relational calculus: Tuple relational Calculus, Domain relational calculus, Expressive Power of Algebra and Calculus.                      |
| Unit-3  | OCT       | Schema Refinement & Normalization: Problems Caused by redundancy, Schema refinement in Database Design, Decompositions & its properties, Problem related to decomposition, Functional Dependency. Normalization: First, Second, Third Normal forms, BCNF, Lossless join Decomposition, Dependency preserving Decomposition, Multi valued Dependencies, Fourth Normal Form. Transaction Management: ACID Properties, Transactions and Schedules, Concurrent Execution of transaction, Serializability and recoverability. |
| Unit 4  | Nov       | Concurrency Control: Introduction to Lock Management, Lock Conversions, Dealing with Dead Locks, Concurrency without Locking. Recovery Techniques, Database Security. Introduction to MySQL/Oracle: Working with MySQL/Oracle. Getting started, Modules of MySQL/Oracle, Invoking SQL*Plus/MySQL Command-line client ('mysql'), Data types, Data Constraints, Operators, Data  |

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**Lesson Plan(ODD SEM)**

*Class MSC Semester 3*

Name of Teacher... **Rajesh Kumar**

Subject/Paper-Java

| Sr. No. | Week Days | Subject Matter/ Syllabus  |
|---------|-----------|---|
| Unit-1  | Aug       | Java History, Java features Java and Internet, Java and World Wide Web, Java Program Structure, Java Tokens, Java Virtual Machine, Data Types, Operators and Expressions, Decision Making and Branching, looping Classes and Methods. Inheritance: Using Existing Classes, Class Inheritance, Choosing Base Class, Access Attributes, types of Inheritance, Abstract Classes, Using Final Modifier.   |
| Unit-2  | Sept      | Polymorphism: Types of polymorphism. Packages & Interfaces: Understanding Packages, Defining a Package, Packaging up Your Classes, Adding Classes from a Package to Your Program, Understanding CLASSPATH. Access Protection in Packages, Concept of Interface. Exception Handling: Types of Exceptions, Dealing with Exceptions, Exception Objects.  |
| Unit-3  | oct       | Multithreading Programming: Understanding Threads, The Main Thread, Creating a Thread, Creating Multiple Threads, Thread Priorities, Synchronization, Deadlocks Inter-thread communication Input/Output in Java: I/O Basic, Byte and Character Structures, I/O Classes, Reading Console. Creating Applets in Java: Applet Basics, Applet Architecture, Applet Life Cycle, Simple Applet Display Methods, Requesting Repainting, Using The Status Window, The HTML APPLET Tag Passing Parameters to Applets. |
| Unit-4  | Nov       | AWT: Working with AWT Controls, AWT Classes, Window Fundamentals, Working with Frame, Creating a Frame Window in an Applet, Displaying Information Within a Window. Working with Graph: Working with Graphics, Working with Color, Setting the Paint Mode, Working with Fonts, Exploring Text and Graphics, Layout Managers and Menus.  |

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Lesson Plan 2025-2026 (ODD SEM)

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## Solving Paper Problem Solving Techniques

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