

Lesson Plan (2026-27)

Govt. P.G. Nehru College, Jhajjar

Name of Professor: Mrs. Sushil Yadav

Class: B.Sc. Physical science Semester: 5th

Subject: Operating Systems and Shell Programming

Sr. No	Month	Topic
1	August	Operating System Basics: Evolution, Objectives & Functions, Characteristics Classification of Operating Systems, OS Services, System Calls, OS Structures. Concept of Virtual Machine. Process Concepts: Definition, Process Relationship. Process states, Process State transitions, Process Control Block. Context switching.
2	September	Process Scheduling: Definition, Scheduling objectives, Types of Schedulers. Scheduling criteria. Scheduling Algorithms: Preemptive and Non-preemptive: FCFS, SJF, RR, Priority Base Scheduling. Performance evaluation of Scheduling algorithms. Inter process Communication: Race Condition, Critical Section, Mutual Exclusion. Deadlocks - System Model, Deadlock Principles. Deadlock Characterization, Deadlock Prevention, Deadlock Avoidance. Deadlock Detection, and Recovery from Deadlock.
3	October	Memory Management: Basic Memory Management, Logical and Physical address map, Memory allocation, Fragmentation and Compaction, Paging and its disadvantages. Input / Output Management: I/O devices, Device controllers, Direct Memory Access Principles of I/O Software. File Management: File concept, Access methods, File types, File operations, Directory structure, File System structure. Allocation methods.
4	November	Introduction To Linux and Linux Utilities: A brief history of LINUX, Architecture of LINUX, Features of LINUX. Introduction to vi editor. Linux File Utilities: File and Directory Utilities: pwd, ls, cd, mkdir, rm, cp, mv, touch, cat, grep. Text processing and Manipulation: tail, sort, cut, echo, history. File Manipulation and Operations: find, tar, chmod, Gzip, chown, chgrp, ps. Network and Connectivity Utilities: top and kill. Other utilities: path, man, passwd, uname, who, date, stty, wc, lp, od, unlink, du, df, mount, umount, find, unmask, ulimit, ps, finger, arp, ftp, cut, paste, join, comm, cmp, diff.
5	December	Revision


Signature of Teacher


HOD

Lesson Plan (2026-27)

Govt. P.G. Nehru College, Jhajjar

Name of Professor: Mrs. Sushil Yadav

Class: M.sc. computer science Semester: 5th

Subject: Data Warehousing & Mining

Sr. No	Month	Topic
1	August	Data Warehousing: Introduction, Data Warehouse and Database Systems, Data Warehouse Architecture, Data Warehouse Models, Data Cube and OLAP, Multidimensional data Model, Concept Hierarchies, OLAP operations, Data Warehouse Implementation.
2	September	Data Mining: Overview and its Importance, Knowledge Discovery Process, Classification of Data Mining Systems, Data Mining Applications and Challenges Data Pre-processing: Need for pre-processing, Data Objects and Attribute types, Data Cleaning, Data Integration, Data Reduction, Data Transformation and Data Discretization.
3	October	Data Mining Associations and Correlations: Mining Frequent Patterns, Associations and Correlations, Frequent Itemset Mining using Apriori Algorithm, Pattern evaluation Methods. Advanced Pattern Mining: Pattern Mining in Multilevel and Multidimensional Space, Constraint-Based Frequent Pattern Mining.
4	November	Classification: Introduction, Classification using Decision Tree Induction, Bayesian Classification Methods, Rule Based Classification, Model Evaluation and Selection, Techniques to Improve Classification Accuracy. Cluster Analysis: Introduction, Basic Clustering characteristics, Partitioning Methods, Hierarchical Methods, Evaluation of Clustering methods.
5	December	Revision

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Lesson Plan (2026-27)

Govt. P.G. Nehru College, Jhajjar

Name of Professor: Mrs. Sushil Yadav

Class: B.Sc. Physical science Semester: 3rd

Subject: Java Programming(SEC)

Sr. No	Month	Topic
1	August	Overview of Java: Java Features, Setting Up the Java Development Environment. Writing, Compiling, and Running a Java Program, Java Virtual Machine (JVM) and Bytecode, Java Development Kit (JDK) and Java Runtime Environment (JRE) Basic Language Elements:Java Syntax and Structure, Identifiers, Keywords, Literals, Comments, Operators Assignments, Data Types, Variables and its types, Constants, Expressions, Control Flow Statements: if-else, switch, loops (for, while, do-while).
2	September	Array: Initializing, Single Dimensional Array, Operation on String, Mutable & Immutable String, Using Collection, Bases Loop for String, Creating Strings using StringBuffer. Class Fundamentals: Object, Object Life cycle, Creating and Operating Objects, Constructor & initialization code block, Access Control, Inner Class, Abstract Class, Argument Passing Mechanism, Method Overloading, Recursion, Use of Access Modifiers with Classes & Methods.
3	October	Introduction to Inheritance: Use and Benefits of Inheritance in OOPs, Types of Inheritance in Java, Inheriting Data members and Methods, Role of Constructors in inheritance, Overriding Super Class Methods, Use of "super", Polymorphism in Java. Interface: Purpose of interface, defining an interface, implementing interfaces. Interface reference variables,Interface with variables, Extending interfaces
4	November	Exception Handling: Types of Errors in Java, Try-Catch Blocks and Finally Clause. Throw and Throws Keywords, Creating Custom Exceptions. Packages: Package as Access Protection, Defining Package, CLASSPATH Setting for Packages. Import and Naming Convention for Packages.GUI programming.
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Lesson Plan (2026-27)

Govt. P.G. Nehru College, Jhajjar

Name of Professor: Mrs. Sushil Yadav

Class: M.Sc. Computer Science

Semester: 3rd

Subject: Computer Organization and Architecture.

Sr. No	Month	Topic
1	August	Representation of Information: Number Systems: Binary, Octal and Hexadecimal, Integer and Floating-point representation, Character codes: ASCII and EBCDIC. Basic Building Blocks and Circuit Design: Boolean Algebra and Logic Gates: OR, AND, NOT, XOR Gates; De Morgan's theorem; Universal building blocks; Simplifying logic circuits : sum of product and product of sum form; Karnaugh Map simplification: Combinational logic blocks (Adders, Multiplexers, Encoders, Decoder), Sequential logic blocks (Latches, Flip-Flops, Registers, Counters).
2	September	Register transfer and Micro-operations: Register Transfer Language; Bus and memory Transfer; Micro operations: Arithmetic, Logic & Shift Micro operations. Basic Computer Organization and Design: Instructions Codes, Register reference, Memory Reference & Input-Output instructions, Instruction Cycle, Timing and Control, Interrupts; Design of Control unit: Hardwired control unit, Micro-programmed control unit. Register Organization: General Register Organization, Stack Organization, Instruction Formats, Addressing Modes; Data Transfer & Manipulation Instructions. Introduction to x86 Assembly Language programming.
3	October	Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Cache Memory, Virtual Memory. Input-Output Organization: Peripheral Devices, Input-Output interface, Asynchronous Data Transfer, Modes of transfer, Priority interrupt, Direct Memory Access (DMA), input-output processors (IOP), Serial communication.
4	November	Parallel Computing: CISC and RISC - Features and Comparison, Pipeline and Vector Processing: Parallel processing, Pipelining, Arithmetic Pipeline, Instruction pipeline and Arrays Processors.
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