

Govt. Polytechnic Hamirpur (H.P.)

Lecture Planning (Theory)

Branch : Comp. Engg. & IoT

Semester : 3rd

Subject : Data Comm. & Computer Networks

Session : Aug-Dec 2026

Teacher : Pankaj Gautam

Classroom : CBLH1

Sr. No.	No. of Lectures Planned	Chapter/ Unit Description	Detail of Contents	Reference/ Resources
1.	14	Overview of Data Communication	Data Communication, Data Communication Characteristics- Delivery, Accuracy, Timeliness, Jitter; Components of Communication System, Data Flow- Simplex, Half-Duplex, Full-Duplex; Analog and Digital Signals, Peer-to-Peer and Client-Server Networks, Characteristics of Analog Signals- Frequency, Amplitude, Wavelength; Composite Signal, Phase, Bandwidth, Low Pass and Band Pass Channels, Baseband and Broadband Transmission, Data Rate Limit.	R1, R4
2.	14	Computer Networks	Objectives of Computer Networks, Applications, Network Protocols, Packet Switching, Circuit Switching, Network Topologies, Types of Computer Networks PAN, LAN, MAN, WAN, Internetworks, Internet- History, Internet Infrastructure, DNS, Internet Routing Hierarchy.	R2, R4
3.	14	ISO OSI Reference Model	Advantages of Layered Network Architecture, ISO OSI Reference Model, Principles of OSI Reference Model, Functions of OSI Layers, Overview of Basic Protocols at Physical, Data Link, Network and Transport Layers.	R1, R2, R4
4.	12	Transmission Media and Networking Devices	Wired Media- Coaxial, UTP, STP, Optical Fibre Cables; Wireless Media- Infrared, Radio Waves, Microwaves; Terrestrial and Satellite Wireless Communication; Transmission Impairments, Networking Devices- Repeater, Hub, Bridge, Switch, Router, Gateway, Modem.	R1, R4
5.	10	TCP/IP Protocol Suite	Layers in TCP/IP Protocol Suite, TCP/IP Protocol Data Units, IPv4 and IPv6 addresses, IPv4 CIDR Notation, Netmasks and Subnets, IPv4 Address Classes and Reserved Ranges, TCP and UDP, Ports, Well-known Ports, Telnet, FTP, SNMP, DHCP and DNS, Overview of Routing- Flooding, Distance Vector, Link State.	R1, R3, R4

Course Outcomes:

After completing this course the students will be able to :

CO-1. Understand the terminology used in the domain of computer networks.

CO-2. Explain the underlying principles of computer networks.

CO-3. Identify and use common networking devices and cables.

CO-4. Understand the working of TCP/IP as a case study.

Teaching Resources:

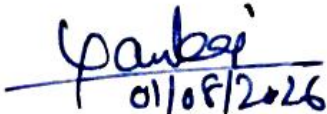
R1: Data Communication and Computer Networks by Behrouz Forouzan.

R2: Computer Networks, Andrew S. Tanenbaum, PHI

R3: TCP/IP Illustrated, Volume-1, W. Richard Stevens, Addison Wesley/

R4: Online Data Communication & Computer Network tutorials at <https://www.tutorialspoint.com/>


Signature of Teacher with Date 01/08/26


01/08/2026
Signature of H.O.D.

Govt. Polytechnic Hamirpur (H.P.)

Lecture Planning (Theory)

Branch : Information Technology
Subject : Programming Using Java
Teacher : Pankaj Gautam

Semester : 5th
Session : Aug-Dec 2026
Classroom : CBLH3

Sr. No.	No. of Lectures Planned	Chapter/ Unit Description	Detail of Contents	Reference/ Resources
1	6	Object Oriented Programming Paradigm	Procedural Programming, Object Oriented Programming (OOP), Advantages of OOP Paradigm, Essential Characteristics of OOP Languages, Classes and Objects, Brief History of Java Programming Language, Features of Java, Important Terminology in Java Programming- JDK, JVM, JRE, Bytecode, Java Compiler, Java Interpreter	R1, R2
2	8	Fundamentals of Java Programming	Structure of Java Program, Comments- Single Line, Multiline and Documentation Comments, Role of main() Method, Java Tokens- Identifiers, Operators, Keywords, Literal Constants, Java Statements, Variables- Local, Instance and Static, Scope and Lifetime of Variables, Data Types, Console IO using System.in and System.out Objects, Operators- Arithmetic, Logical, Relational, Bit-wise, Assignment and Conditional Operators, Special Operators, Operator Precedence and Associativity.	R1, R3
3	10	Control Statements	Selection Control Statements- if, if...else, if...else if ladder, nested if, switch...case; Looping Control Statements- while loop, do...while loop, for loop, for each loop; Jump Statements- break, labeled break, continue, return	R1, R2, R3
4	8	Arrays and Strings	Array Definition, One Dimensional Array- Declaring, Initializing and Accessing its Elements; Multi-Dimensional Arrays, Irregular Arrays, Strings, String Literals, Escape Sequences, String Methods- charAt(), indexOf(), length(), substring(), toLowerCase(), toUpperCase(), replace(), trim().	R1, R3, R4
5	10	Object Oriented Programming in Java	Class- Defining a Class, Access Modifiers, Instance Variables, Methods, Method Overloading, Constructor, Static Members, Final Members, Static Blocks; Objects Creating Objects; Polymorphism- Compile Time and Runtime Polymorphism; finalizer Method, Garbage Collection, Packages, Wrapper Classes, Inheritance, Method Overriding, Abstract Methods, Abstract Class, Final Class, Interfaces, Multiple Inheritance using Interfaces.	R1, R3, R4
6	6	Exception Handling	Exceptions, checked and unchecked exceptions, built-in exceptions, implementing exception handling- try, catch and finally blocks, using multiple catch statements, user-defined exceptions, throw statement, throws clause.	R1, R2, R4

Course Outcomes

After completing this course the students will be able to

- CO-1 Understand the fundamental object-oriented programming terminology.
- CO-2 Design the solutions of simple problems around a set of objects.
- CO-3 Understand the syntax of Java programming language
- CO-4 Implement the solutions of simple problems in Java programming language.

Teaching Resources

- R1: Java, the Complete Reference by Herbert Schildt, McGraw-Hill Education
- R2: Online Java tutorials at <https://www.w3schools.com>
- R3: Online Java tutorials at <https://www.tutorialspoint.com/>
- R4: Online Java tutorials at <https://www.geeksforgeeks.org/>

Signature of Teacher with Date

Signature of H.O.D.