

**MASTER OF COMPUTER APPLICATION – FIRST SEMESTER**

First Semester		
Sr. No.	Name of Subject	Credits
1	Computer Networks	3
2	Unix and Shell Programming	4
3	Software Engineering	4
4	Management Information System	4
5	Programming in Java	4
6	Analysis & Design of Algorithms	3
<b>Total</b>		<b>22</b>

**Subject Name:** COMPUTER NETWORK

- 1. Introduction to Computer Networks:** Introduction, User of Networks: Goals and applications, OSI Reference Mode, Novell Netware, ARPANET, NSFNET, The Internet.
- 2. The Physical Layer:** Transmission media, Twisted Pair, Baseband and Broadband Coaxial Cable, Fiber Optics, Wireless Transmission, Radio Transmission, Microwave Transmission, Infrared Transmission, Light Wave Transmission, ISDN Services, Virtual Circuits versus Circuit Switching, Transmission in ATM Network, Paging System, Cordless Telephone, Cellular Telephone, Communication Satellite.
- 3. The Data Link Layer:** The data link Layer, Framing , Error Control, Flow- Control, Error Detection and Correction Protocols, Simplex Stop and Wait Protocols, One Bit sliding Window, Using Go-Back n, the Data link layer in the internet.
- 4. The Medium Access Sub – Layer:** The Medium Access Sub Layer , Framing Static and Dynamic Channel Allocation in LAN and MANs ,IEEE standard 802.3 and Ethernet, IEEE standard 802.4 and Token Bus, IEEE 802.4 and Token Ring; Bridges, Bridges form 802x to 802y, Transparent Bridges, Source Routing Bridges.
- 5. The Network Layer:** The network layer , network layer Design Issues, shortest Path routing, Flooding, Flow Based Routing , Broadcast Routing, Congestion Control and Prevention Policies, Internet Working, Connectionless Internet Working , Tunneling Internet Work Routing, Fragmentation, Firewalls, IP Address Internet Control Protocols.

6. **The Transportation Layer:** The transportation Layer, The Transport Service, Transport Protocols, Addressing,, Establishing a Connection, Releasing a Connection, The Internet Transport Protocols, TCP.
7. **The Application Layer:** The Application layer, Network Security, Electronic mail, working of e-mail.

**Subject Name:** UNIX AND SHELL PROGRAMMING

1. **Introduction:** Features, System Structure, Shell & its Features, Kernal: Architecture of the UNIX OS, Kernal Data Structure.
2. **Overview:** Logging in & out, I node and File Structure, File System Structure and Features, Booting Sequence & init process, File Access Permissions.
3. **Shell Programming:** Environmental & user defined variables, Argument Processing, Shell's interpretation at prompt, Arithmetic expression evaluation, Control Structure, Redirection, Background process & priorities of process, Conditional Execution, Parameter & quote substitution.
4. **Advanced Shell Programming:** Filtering utilities, Awk, Batch Process, Splitting, comparing, sorting, Merging & Ordering Files, Communications with other users.
5. **Editors and utility:** Link Editor (ed), Screen Editor tutorial (Vi), Fsock Utility.

**Subject Name-**SOFTWARE ENGINEERING

1. The Software Problem
2. Software Process
3. Software Requirements Analysis and Specification
4. Software Architecture
5. Planning a software project
6. Design
7. Coding and Unit Testing
8. Testing

**Subject Name:** MANAGEMENT INFORMATION SYSTEM

1. Introduction to Information System in Business: Organization, Management and Network Enterprises Information system in enterprises, Information system, Organization, Management and Strategy: The changing role of Information system in organization, Decision making, business strategy.
2. Computer Hardware and Computer software, Telecommunications, Categories of computer and Computer system, what is software, System software telecommunication and Networks.
3. Information System for Managerial Decision Support, Managing Knowledge: Knowledge Management in organization, Information and Knowledge work system. Group Discussion Support System (GDSS), What is GDSS, Characteristics of GDSS.
4. Enterprise and Global Management: Redesigning the Organization with Information System: Business Process reengineering and Total Quality Management. Management international Information system: The Growth of international information system, organizing international information system, Managing global system.

**Subject Name:** PROGRAMMING IN JAVA

1. Internet
2. Object Oriented Programming

3. Introduction to Java
4. Java Fundamentals
5. Java Programming
6. Data Types, Variables and Operators
7. Classes and Objects
8. Exploring Methods and Inheritance
9. Packages and Interface
10. String, Array and Vector
11. Java Language Support and Utility Package
12. File Handling
13. Graphics
14. Networking
15. Remote Method Invocation (RMI)
16. Java Beans
17. HTML and Java Script

**Subject Name:** ANALYSIS AND DESIGN OF ALGORITHM

1. Algorithm
2. Growth of Function
3. Analyzing Algorithm Control Structures
4. Recurrences
5. Quick Sort
6. Curriculum of Social Studies
7. Amortized Analysis
8. Heap
9. Sorting in Linear Time
10. Median and Order Statistics
11. Backtracking