**TCP/IP**

1. Tracing IP Packets Around the World
2. Introduction and Overview of TCP/IP
3. Grasp TCP/IP Architecture and Resources
4. TCP/IP and OSI Model
5. Internet Addresses
6. IP: Internet Protocol
7. TCP: Transmission Control Protocol
8. UDP: User Datagram Protocol
9. Internetworking Design
10. TCP/IP – Application Level Protocols
11. TCP/IP on Frame Relay, SDH and ATM
12. Network Management
13. Assessment

MICRO SYLLABUS

UNIT 1: INTRODUCTION

1. Network Devices  
   a. Routers

b. Firewalls

c. Gateways

1. Network Media and Interfaces
2. Media
3. Interfaces
4. Nodes and Hosts
5. Clients and Servers
6. LAN, MAN, SAN
7. WAN
8. Packet Switches
9. Forwarding a Packet
10. VPN
11. Network Systems
12. Autonomous Systems and Backboned
13. Routers and Gateways

UNIT 2: INTRODUCTION & OVERVIEW OF TCP

1. Network Architecture
2. Client/Server Networks
3. Port Numbers
4. Network Interface Layer
5. Internet Layer
6. Transport Layer
7. Application Layer
8. Internet Security & IPSec
9. Network Management

UNIT 3: TCP/IP PROTOCOLS

1. IP  
   a. IP Address
2. IP Address Classes\
3. Netmasks
4. Subnet Address
5. IP Routing
6. ARP
7. Directed Broadcast Address
8. Limited Boradcast Address
9. The Transport Layer  
   a. TCP Connection/Socket
10. TCP Header
11. The Application Layer  
    a. DNS

UNIT 4: TRANSMISSION CONTROL PROTOCOL

1. Problem statement
2. Transmission Control Protocol Attributes and Features
3. Transmission Control Protocol Basics  
   a. Transmission Control Protocol Headers
4. Segment Size
5. Three way handsake
6. The TCP Synchronize Flood Attack
7. TCP Termination
8. Transmission Control Protocol Performance
9. Slow Start
10. Congestion Avoidance
11. Fast Retransmit
12. Fast Recovery

UNIT 5: INTERNET LAYER and BELOW

1. The Internet Protocol  
   a. Internet Protocol Addressing  
   b. Address Notation
2. Internet Address Types
3. Network Address Architecture
4. IPv4 Type of Service
5. IPV4 Routing  
   a. Moving Packets  
   b. Hosts and Routers  
   c. Internet Protocol Packet Processing  
   d. Source Routing

UNIT 7: NEXT GENERATION IP: IPV6

1. Why IPV6?
2. Whats New in IPv6
3. IPv6 Addressing
4. Header Simplification
5. Authentication and Privacy
6. IPV6 Datagram Headers
7. IPV6 Options
8. IPV6 Addressing
9. IPv6 Address Representation
10. IPv6 Address Architecture
11. IPv6 Address Space Structure
12. Migrating to IPV6
13. Protocol Tunnelling
14. IPv4/ IPv6 Dual Stack

UNIT 8: SIMPLE NETWORK MANAGEMENT PROTOCOL

1. Managing Networks with SNMP
2. Simple Network Management Protocol
3. SNMP Commands
4. Structure of Management Information
5. Remote Network Monitoring

UNIT 9: INTERNET SECURITY

1. Security Concepts
2. The human Factor
3. Laws of Computing
4. Laws of Nature

UNIT 6: TRANSPORT LAYER PROTOCOLS of THE FUTURE

1. Stream Control Transmission Protocol  
   a. Stream Control Transmission protocol Architecture
2. Stream Control Transmission protocol Element
3. Stream Control Transmission protocol Functions
4. Datagram Control Protocol
5. The Future