

COURSE TITLE : **NETWORK INFRASTRUCTURE MANAGEMENT**
COURSE CODE : **6135**
COURSE CATEGORY : **E/A**
PERIODS/WEEK : **5**
PERIODS/SEMESTER : **75**
CREDITS : **5**

TIME SCHEDULE

MODULE	TOPICS	PERIODS
1	Networking Control Devices	18
2	IP addressing, Access Control	18
3	Basics of Router Configuration	19
4	IP Routing Protocols	20

Course General Outcomes:

Sl.	G.O	On completion of this course the student will be able :
1	1	Understand the present networking scenario
	2	Understand the commonly used networking devices
	3	Understand cable categories, connection tools, and cable structures
2	1	Understand IP addressing- IPV4 and IPV6
	2	Understand Domain and work group users
	3	Understand Securing files and folders
3	1	Basics of Router Configuration
4	1	Understand TCP/IP Dynamic Routing Protocols
	2	Understand Configuring IP Routing Protocols
	3	Understand Network Troubleshooting, Performance Tuning

Specific Outcomes:

Module I - Networking Control Devices

- 1.1 Understand the present networking scenario.
 - 1.1.1 Explain current networking scenario.
 - 1.1.2 Describe Network Infrastructure Management
- 1.2 Understand the commonly used networking devices
 - 1.2.1 Explain about Switch, Hub and Router
 - 1.2.2 Explain Repeaters, VPN devices and Modem
 - 1.2.3 Discuss about wireless network devices (wi-fi, Bluetooth, wi-max)

- 1.3 Understand cable categories, connection tools, and cable structures
 - 1.3.1 Describe Bounded media–Twisted Pair (straight through, Cross-Over, Roll-Over)
 - 1.3.2 Explain Co-axial Cable
 - 1.3.2 Explain unbounded media - Fiber Optics media

Module II - IP addressing, Access Control and User Permission Settings

- 2.1 Understand IP addressing- IPV4 and IPV6
 - 2.1.1 State Versions of IP addressing
 - 2.1.2 Explain the Classes of IP address
 - Describe subnet mask
 - 2.1.5 Explain the Concept of DNS and DHCP server
 - 2.1.5 Explain the working of DNS and DHCP
 - 2.1.6 List the Installation requirements of DNS and DHCP
- 2.2 Understand Domain and work group users
 - 2.2.1 Explain Managing users and group accounts
 - 2.2.2 Describe how to add group memberships
 - 2.2.3 List the steps for creating child domain
 - 2.2.4 Explain about domain controllers
 - 2.2.5 Explain about Trust relations
- 2.3 Understand Securing files and folders
 - 2.3.1 Describe about set up share permission
 - 2.3.2 Explain how to set up security permission
 - 2.3.3 Explain remote desktop connections
 - 2.3.4 Describe Remote Desktop Assistance
 - 2.3.1 Explain windows firewall
 - 2.3.2 Explain Encryption techniques
 - 2.3.3 Describe IP security
 - 2.3.4 Explain system backup
 - 2.3.5 Explain active directory backup

Module III Basics of Router Configuration

- 3.1 . Understand Routers.
 - 3.1.1 Describe Router Hardware
 - 3.1.2 Explain Memory on Routers
 - 3.1.3 Explain 'Talking to Router' (Through the Console).
 - 3.1.4 Explain Router IOS
 - 3.1.5 Explain Configuring Router with <copy> and TFTP
 - 3.1.6 Explain Basic Router Configuration
 - 3.1.7 Explain Disaster Recovery
 - 3.1.8 Explain about Setting the Bootstrap Behavior
 - 3.1.9 Describe Configuration Register Settings
 - 3.1.10 Explain upgrading Router's IOS
 - 3.1.11 Explain Configuring the Router's Clock
 - 3.1.12 Explain IOS Message Logging.

- 3.1.13 Explain Setting Up Buffered Logging.
- 3.1.14 Explain Setting Up Trap Logging
- 3.1.15 Explain IOS Authentication and Accounting.

Module IV Configuration of IP Routing Protocol

- 4.1 Understand TCP/IP Dynamic Routing Protocols
 - 4.1.1 Describe General Routing Concepts and Terms
 - 4.1.2 Explain TCP/IP Static Routing
 - 4.1.3 Explain TCP/IP Interior Gateway Protocols
 - 4.1.4 Explain TCP/IP Exterior Gateway Protocols
- 4.2 Understand Configuring IP Routing Protocols
 - 4.2.1 Choose the Right Protocol
 - 4.2.2 Explain Route Selection
 - 4.2.3 Display General Routing Information
 - 4.2.4 Manage Static Routing.
 - 4.2.5 Configure Dynamic IGP and EGP IP Routing Protocols
 - 4.2.6 Explain Route Control and Redistribution
- 4.3 Understand Network Troubleshooting, Performance Tuning, and Management Fundamentals.
 - 4.3.1 Explain Network Analysis and Performance Tuning
 - 4.3.2 Develop Troubleshooting Skills.
 - 4.3.3 Explain Network Management Fundamentals

CONTENT DETAILS

Module I Networking Control Devices

Familiarization of networking Control Devices Current networking scenario-importance of Network Infrastructure Management-
 Commonly used networking devices- Switch, Hub and Router- Repeaters, VPN devices and Modem- wireless network devices (wi-fi, Bluetooth, wi-max).
 Cable categories, connection tools, and cable structures Twisted Pair (straight through, Cross-Over, Roll-Over) Co-axial Cable Fiber Optics media

Module II IP addressing, Access Control and User Permission Settings

Domain and work group network architecture:-client server architecture -the Requirements of domain network-Domain controllers and Active directory.
 Analyze IP addressing-IPV4 and IPV6:-Versions of IP addressing-Classes of IP address-Understanding subnet mask-Concept of DNS DHCP server -Working of DNS and DHCP-Installation requirement of DNS and DHCP.
 Domain and work group users:-Managing user, group accounts-Adding group memberships-Physical and logical components of domain-Understanding child domain-additional domain controller-Trust relation.Securing files and folders:- setting share permission-setting security permission. Remote

Management:- remote desktop connections-Remote Desktop Assistance. Operating system security overview:- windows firewall- Encryption techniques-IP security-system backup- active directory backup.

Module III Basics of Router Configuration

Introduction to Routers. Router Hardware-Memory on Routers- 'Talking to Router' (Through the Console).- Router IOS- Configuring Router with <copy> and TFTP-Basic Router Configuration-Disaster Recovery-Setting the Bootstrap Behavior-Configuration Register Settings-t upgrading Router's IOS-Configuring the Router's Clock-IOS Message Logging.-Setting Up Buffered Logging-Setting Up Trap Logging-IOS Authentication and Accounting.

Module IV IP Routing Protocols

TCP/IP Dynamic Routing Protocols:General Routing Concepts and Terms-TCP/IP Static Routing-TCP/IP Interior Gateway Protocols-t TCP/IP Exterior Gateway Protocols

Configuring IP Routing Protocols on Routers: Choosing the Right Protocol-Route Selection-General Routing Information-Managing Static Routing- Configuring Dynamic IGP and EGP IP Routing Protocols-Route Control and Redistribution.

Network Troubleshooting, Performance Tuning, and Management Fundamentals: Network Analysis and Performance Tuning-Develop Troubleshooting Skills-Network Management Fundamentals.

TEXT BOOK(S):

1. Understanding the Network A Practical Guide to Internetworking , Michael J. Martin New Riders Publishing

REFERANCE:

1. Richard McMohan Introduction to Networking Tata McGraw Hill
2. Behrouz A. Forouzan – Local Area Networks McGraw Hill Edn.
3. Todd Lammle- CiscoCertified Network Associate 3/E Wiley India Pvt. Ltd/Sybex Jill Spealman, Planning, Implementing, and Maintaining a Windows Server, Microsoft Press