

Subject Code: 2ET4040505	Subject Title: Network Management & Administration
Pre-Requisite	Fundamental knowledge of Computer Network

RATIONALE:

To access remote programs, data, and hardware resources lying either on the same organization's computers or from other enterprises or public sources for resource sharing, ecommerce, use of social network etc, connecting the IT resources is the prime requirement of today. The computer networks provide communication possible. In this scenario the management and administration of network in effective manner becomes an important aspect. The course introduces students to the fundamentals of network management, primarily for TCP/IP networks. The students of this course will be able to design, install, configure and experience hands-on management of typical network components. They will also be able to administer and manage the network. After learning this course student will be employable in the industry working in the area of network installation and management or they can start their own business providing hardware and software solutions to different organization in the area of networking.

COURSE OBJECTIVE:

The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning outcomes in cognitive, psychomotor and affective domain.

TEACHING AND EVALUATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)			
Lecture	Tutorial	Practical	Credit	Theory		Practical	
				University Assessment	Continuous Assessment	University Assessment	Continuous assessment
3	-	2	4	60	40	20	30

DETAILS OF COURSE CONTENTS:

Sr. No.	TOPIC	Total Hrs.	Weightage
UNIT-I	Exploring Directory Services and Remote Access 1.1 Directory Services: Define Directory Service, Definition of Novell Directory, Windows Domain, MS Active Directory, X500 Directory Access Protocol, Lightweight Directory Access Protocol. 1.2 Forests, Trees, Roots and Leaves, Domain 1.3 Active Directory Architecture: Object Types, Object Naming: Canonical Names, DAP Notation Globallyunique identifiers, User Principal Names 1.4 Remote Network Access: Need of Remote Network Access, PSTN, ISDN, DSL, CATV, 1.5 Virtual Private Network: VPN Protocols, Types of VPN, VPN Clients VPNs.	08	20%
UNIT-II	Network Protocols and Services 2.1 DHCP: DHCP Origins, Address Resolution Protocol (ARP), Reverse Address Resolution Protocol (RARP),	10	24%

	The Bootstrap Protocol (BOOTP), DHCP Objectives Address assignments, DHCP Architecture, 2.2 Introduction to Domain Name Systems (DNS): DNS Objectives, Domain Naming, Top Level Domains, Second Level Domains, Sub-domains, DNS Functions, Resource Records, DNS Name Resolution, Resolvers, DNS Requests, Root Name Servers, Resolving a Domain Name, DNS Name Registration, 2.3 Network Printing Concepts: Locally Connected Print Devices, setting up local Print Devices, Shared Print Devices, Sharing Locally Attached Print Devices, Describe Windows Network, Printing and Add print Wizard		
UNIT-III	Network Planning and Implementation 3.1 Designing Network: Accessing Network Needs, Applications, Users, Network Services, Security and Safety, Growth and Capacity Planning 3.2 Meeting Network Needs: Choosing Network Type, Choosing Network Structure, Choosing Servers. 3.3 Installing and Configuring Windows Server: Preparing for Installation, installing windows server, Configuring server/client. 3.4 Setting windows server: Creating Domain Controller, Adding the DHCP and WINS roles, adding file server and print server, Adding IIS	09	21%
UNIT-IV	Network Configuration 4.1 Working with User Accounts: Adding a User, Modifying User Account, Deleting or Disabling a User Account. 4.2 Working with Windows Security Groups: Creating Group, Maintaining Group Membership. 4.3 Working with Shares: Understanding Share Security, Creating Shares, Mapping Drives 4.4 Administering Printer Shares: Setting up Network Printer 4.5 Working with Windows Backup: Types of Back up, Using Windows Servers Backup Software	08	20%
UNIT-V	Troubleshooting of Networking 5.1 Understanding the Problem: Troubleshooting, Segmenting the Problem, Isolating the Problem, Setting Priorities. 5.2 Troubleshooting Tools: Hardware Tool, Software Tools, Monitoring and Troubleshooting Tool 5.2 Internal Security: Account Security, File and Directory permissions, Practices and user education	07	15%

COURSE OUTCOME:

The course content should be taught and implemented with an aim to develop different skills leading to the achievement of the following competencies and course learning outcomes:

- 1 Analyse the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.
- 2 Install, configure and manage enterprise systems/networks, including hardware/software.

- 3 Implement and configure active directory.
- 4 Create user/group accounts and configure server roles.
- 5 Administer permissions for users, files and network resources.
- 6 Use group policies to configure and secure the network.
- 7 Maintain and troubleshoot enterprise networks.

The practical should be carried out in such a manner that students are able to acquire different learning outcomes in cognitive, psychomotor and affective domain to demonstrate course learning outcomes.

SUGGESTED LIST OF PRACTICAL:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his / her methodology and requirement.

SR. No.	Experiments
1	Execute Basic TCP/IP utilities and commands.
2	Design and implement small network using actual physical
3	Setting up and Configuring Local Print Device and Network Print Device
4	Creating Windows Server Boot Disk.
5	Installing Windows Server
6	Installing and configuring Linux Server
7	Installing Active Directory & Creating AD Objects
8	Create Domain Controller
9	Create DHCP Server.
10	Create new Users & assign privileges/ Permission.
11	Modify/ Delete/Deactivate Users and groups
12	Configure Print Server & Backup Server
13	Identify, Segment Network Faults and troubleshoot
14	Manage Desktop Configuration using Group Policy

LIST OF REFERENCES:

Sr.No	Title	Author	Publication
1	The Complete Reference Networking	Craig Zacker	Tata McGraw Hil
2	The Real-World Network Troubleshooting Manual	Networking A Beginner's Guide	Firewall Media
3	MCSE Training Kit Networking Essential Plus	Microsoft Press	MicroSoft Press

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes(POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	H	M	M	L	L							H	M		
CLO2	H	M	H	H	M	L							H	H	M	
CLO3	H	M	M	M	L								H	H	M	
CLO4	M	M	H	H	L								M	H	M	
CLO5	M	H	H	M	L	L							H	H	M	
CLO6	M	M	H	H	M	M	L						H	H	M	
CLO7	H	H	H	H	M	M	L						H	H	H	

H:High, M:Medium, L:Low