

**Programme** : Diploma in Computer Engineering and Information Technology.  
**Programme Code** : 06/07  
**Name of Course** : Network Management and Administration  
**Course Code** : CM586

**Teaching Scheme:**

	Hours /Week	Total Hours
<b>Theory</b>	<b>04</b>	<b>64</b>
<b>Practical</b>	<b>02</b>	<b>32</b>

**Evaluation Scheme:**

	Progressive Assessment	Semester End Examination			
		Theory	Practical	Oral	Term work
Duration	Two class tests of 60Min. duration	3 hrs.	---	---	---
Marks	20	80	--	25	25

**Course Rationale:**

This course is aimed at providing the students with hands on Experience over Network Operating System: Windows 2008 Server, Configuring Server for Network Environment. It would expose students to administration and security issues in Network Environment.

**Course Objectives:**

After studying this course, the student will be able to	
•	Install Windows Server 2008
•	Configure networking resources
•	Monitor network performance
•	Troubleshoot network faults
•	Manage disk quota
•	Implement backup and recovery strategy

**Course Content:**

Chap. No.	Name of Topic/Sub topic		Hrs	Weightage
SECTION - I				
1	The Windows Server 2008 Environment			
	1.1	The Windows Server 2008 family and key features, Hardware requirements, Installation of Windows Server 2008. Architecture of windows server 2008.	12	12
	1.2	Installing Device Driver, Signing Options, Installing, configuring Administrative Tools.		
	1.3	Implementing User, Group, and Computer Accounts : Creating User Accounts, Creating Computer Accounts, Modifying User and Computer Account Properties.		
	1.4	Creating User Account Template, Managing User and Computer account Accounts.		
	1.5	Managing Groups : Creating groups, Managing group membership, Strategies for using groups, Using default groups, Creating Global and Domain Local Groups.		
2	Managing Access to Resources & Managing User Environment			
	2.1	File systems – FAT, Fat32, NTFS, Features of NTFS, Creating and Sharing Folders, Configuring NTFS Permissions, Publishing Shared Folders, Testing Permissions, Determine effective permissions.	12	16
	2.2	The active directory’s logical structure, Benefits of active directory, Components and mechanisms in active directory –datastore, Schema, Global catalog, replication Overview of Active directory domains, transitive two way trust relationships, using multiple domains, active directory forest, active directory object names, active directory’s physical structure, accessing active directory through LDAP		
	2.3	Managing Group Policy :Configuring Group Policy Settings, Assigning Scripts with Group Policy, Restricting Group Membership and Access to Software Planning group policy strategy, creating		
3	Administrative Templates and Audit Policy			
	3.1	Group Policy Objects GPOs Group policy inheritance, Managing GPOs, Delegating Administrative control to GPOs Redirecting folders using group policy	10	12
	3.2	Using Account policy – password policy, logon policy, disk quota policy, account lockout policy, audit policy, Configuring Auditing ,		
	3.3	Overview of Security in Windows Server 2008, Using Security templates to Secure Computers, Testing Computer Security Policy, Managing Security Logs, Creating a Custom Security Template, importing security Template		

Chap. No.	Name of Topic/Sub topic		Hrs	Weightage
SECTION - II				
4	Windows Server 2008 networking & IP Routing:			
	4.1	Defining a network infrastructure, basic terms - workgroup, domain, multiple domains, trust relationship .Active directory, remote access, name resolution, TCP/IP network infrastructure - network protocols	12	12
	4.2	IP address - the hierarchical addressing scheme, classification of IP address, Subnetting network, subnetting concepts - information hiding, subnetting TCP/IP networks, calculating number of subnets		
	4.3	Timesharing Environment , Logging , Network Virtual Terminal. Embedding, File Transfer Protocol , Communication over Control Connection, Communication over data connection, Anonymous FTP.		
	4.4	Architecture, User agent, Message transfer agent(SMTP), Message Access agent(POP and IMAP), Email Privacy.		
5	DHCP & Domain Naming Systems :			
	5.1	Overview of DHCP, the DHCP lease process, Understanding scope details, Advantages and disadvantages of DHCP. Installing DHCP, authorizing DHCP for active directory, creating and managing DHCP scopes, managing reservations and exclusions, super scope, multicast scopes.	12	16
	5.2	Understanding DNS, Domain naming, DNS and the internet, DNS and Windows Server 2008, Dynamic DNS, DNS Terminology , Working of DNS		
	5.3	Installation and configuration of DNS server, Creating DNS zones - forward lookup and reverse lookup zone		
	5.4	Overview of Dial-up networking (DUN) and Virtual private networks (VPN) , Installing the remote access services, configuring RAS server. Managing RAS, Remote access security - user authentication, connection security, access control, Using remote access policies, Using remote access profiles		
6	Backup and Recovery Strategy & Cloud Computing:			
	6.1	Backup and Recovery Strategy :Planning backup and recovery strategy, using windows backup, Scheduling backup jobs, Backing up system state data, Using volume shadow copy, automated system recovery .	10	12
	6.2	Cloud Computing : Evolution of Cloud Computing, Introduction to Cloud Computing: Cloud Computing model(NIST) , Properties and Characteristics. Cloud Introduction to Computing Architecture : Cloud Computing Stack, Service models , Deployment Models.		
Total			64	80

**List of Pratics / Experiments/Assignments:**

<b>Sr. No.</b>	<b>Name of Experiment/ Assignment</b>	<b>Hrs</b>
1	<ul style="list-style-type: none"><li>• Installation of Windows Server 2008/Windows 2000 Server/ Windows 2008 Server</li><li>• Creation and Management of local users .</li><li>• Creation and Management of group and implementation of its properties.</li><li>• Installation of Device Drivers.</li><li>• System Performance Monitoring through Windows Performance Monitoring.</li></ul>	06
2	<ul style="list-style-type: none"><li>• Installation and implementation of Remote Desktop.</li><li>• Sharing and managing Resources.</li></ul>	04
3	<ul style="list-style-type: none"><li>• Creating login screen, Configuration of logon policies, password policy.</li><li>• Testing, creating and importing security templates.</li></ul>	04
4	<ul style="list-style-type: none"><li>• Configuration of TCP/IP network<ul style="list-style-type: none"><li>i) Assign IP Address</li><li>ii) Verify IP Communication</li></ul></li><li>• Implementation of local, roaming, hardware profile.</li></ul>	06
5	<ul style="list-style-type: none"><li>• Installation and verification of Active Directory<ul style="list-style-type: none"><li>i. Domain Controller</li><li>ii. NetBIOS Domain Name</li><li>iii. Permissions</li><li>iv. Verifying the Installation<ul style="list-style-type: none"><li>• Event Viewer</li><li>• Event Log</li></ul></li></ul></li><li>• Installation of Domain Name System<ul style="list-style-type: none"><li>i. DNS Namespace</li><li>ii. DNS Zones</li></ul></li></ul>	04
6	<ul style="list-style-type: none"><li>• Installation and implementation of DHCP<ul style="list-style-type: none"><li>i) Authorizing DHCP for Active Directory</li><li>ii) Creating and managing DHCP Scopes</li></ul></li><li>• Writing batch scripts for administrative purpose.</li></ul>	04
7	<ul style="list-style-type: none"><li>• Case Study on any one Open source and commercial Cloud-Microsoft Azure , Eucalyptus , Amazon EC2</li></ul>	04
<b>Total</b>		<b>32</b>

**Text/Reference Books:**

<b>SR. NO.</b>	<b>AUTHOR</b>	<b>TITLE</b>	<b>PUBLISHER</b>
1.	Paul Robichaux, Matt Shgveltz, James Chellis	MCSA/MCSE Windows Sever 2008 Network Infrastructure Implementation, Management and Maintenance	BPB
2.	Behrouz Forouzan	Data Communication and Networking	TMH
3.	Eric Maiwald	Network Security : A Beginners Guide	TMH
4.	Rajkumar Buyya, James Broberg 2011	Cloud Computing : Principles and paradigms	Wiley

**Specification Table:**

<b>Sr. No.</b>	<b>Topic</b>	<b>Cognitive Levels</b>			<b>Total</b>
		<b>Knowledge</b>	<b>Comprehension</b>	<b>Application</b>	
1.	The Windows Server 2003 Environment	08	02	02	12
2.	Managing Access to Resources & Managing User Environment	10	02	04	16
3.	Administrative Templates and Audit Policy	08	02	02	12
4.	Windows Server 2008 networking & IP Routing	08	02	02	12
5.	DHCP & Domain Naming Systems	10	02	04	16
6.	Backup and Recovery Strategy & Cloud Computing	06	02	04	12
	<b>Total</b>	<b>50</b>	<b>12</b>	<b>18</b>	<b>80</b>

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