

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING AND TECHNOLOGY									
Programme		Bachelor of Technology			Branch/S pec.		Computer Science & Engineering (CBA/CSE)		
Semester		VI			Version		1.0.0.1		
Effective from Academic Year			2024-25		Effective for the batch Admitted in			June 2022	
Subject code		2CSE605		Subject Name		IT Infrastructure Management			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(D T)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	0	0	2	0	2	Theory	00	00	00
Hours	0	0	2	0	4	Practical	60	40	100
Pre-requisites:									
Operating System Concepts, Computer Network Concepts									
Objectives of the Course:									
After the completion of the course, student will be able to:									
<ul style="list-style-type: none"> • Apply partition concepts to resolve storage related issues • Design and configure different servers based on the company requirements • Manage the network resources and security policy of an organizations • Implement various system administration related tasks automatically 									
Practicals are defined based on the following topics:									
Sr No.	Content								
1	Configuring SSH Hardening the SSH Server, Limiting Root Access, Configuring Alternative Ports, Modifying SELinux to Allow for Port Changes, Limiting User Access, Using Oth(1)er Useful sshd Options 851, Session Options, Connection KeepAlive Options, Configuring Key-Based Authentication with Passphrases, Configuring SSH Tunnels								
2	Configuring File Services Setting Up SMB File Sharing , Installing Samba, Preparing Shared Directories on Linux, Configuring /etc/samba/smb.conf, Using Samba Users, Securing Samba, Samba-Related SELinux Parameters, Samba Firewalling, Setting Up Kerberized Samba Shares, Accessing SMB Shares, Discovering Samba Shares, Mounting Samba Shares, Performing a Multiuser Samba Mount, Mounting Samba Shares Through automount								
3	Configuring NFS Setting Up the Basic NFSv4 Server, Configuring the NFSv4 Server, Accessing NFS Shares Testing Client Access with showmount, Making NFS Mounts Persistent, Configuring the Firewall for NFSv4, Configuring SELinux for NFSv4, Configuring NFS Kerberos Authentication, Understanding NFSv4 SELinux Transparency								
4	Configuring a Basic Web Server Identifying the Main Configuration File, Creating Web Server Content, Understanding Apache Configuration Files, Creating Apache Virtual Hosts								

5	Setting Up an SMTP Server Understanding Email Basics , Understanding Roles in Mail Handling, The Email Transmission Process, Mail Server Solutions on RHEL, Configuring Postfix Parameters , Understanding Essential Parameters, Configuring Postfix to Relay Mail, Verifying a Working Mail Configuration
6	Configuring DNS Understanding DNS , The DNS Hierarchy, DNS Terminology, Understanding DNS Lookups, Understanding Resource Records, Setting Up a Cache-Only DNS Server, Understanding the Need for DNSSEC, Configuring the Unbound Caching Name Server, Configuring Trust Anchors, Troubleshooting DNS Issues, Dumping and Changing the Unbound Cache, Using dig, Analyzing Client Issues
7	Configuring a firewall Understanding Linux Firewalling, Understanding Previous Solutions, Understanding FirewallD Understanding FirewallD Zones, Understanding FirewallD Services, Working with FirewallD, Working with Firewall-cmd, Working with Firewall-config
8	Managing Time Synchronization Understanding the Need for Synchronized Time, Setting Up Time Synchronization, Understanding NTP, Configuring chrony to Synchronize Time, Managing and Monitoring Time Synchronization with chronyc
9	Configuring External Authentication and Authorization Understanding Remote Authentication, Understanding Kerberos Basics, Understanding Kerberos Authentication, Understanding Kerberos Principals, Configuring LDAP Authentication with Kerberos Authorization, Using nslcd or sssd as the Authentication Backend Service, Setting Up External Authentication, Using an IPA Server or Active Directory
10	Configuring Permissions Managing File Ownership, Displaying Ownership, Changing User Ownership, Changing Group Ownership, Managing Basic Permissions, Applying Read, Write, and Execute Permissions, Managing Advanced Permissions, Managing ACLs, Understanding ACLs , Preparing Your File System for ACLs, Changing and Viewing ACL Settings with setfacl and getfacl, Working with Default ACLs, Setting Default Permissions with umask
11	Scheduling Tasks Configuring cron to Automate Recurring Tasks, Managing the cron Service, Understanding cron Timing, Managing cron Configuration Files, Understanding the Purpose of anacron Managing cron Security, Configuring at to Schedule Future Tasks
12	Disk Management Adding Partitions, File Systems, and Persistent Mounts, Managing Swap Space
13	Managing Logical Volume Management (LVM) Storage Logical Volume Management Concepts, Managing Logical Volumes, Extending Logical Volumes, Reducing Logical Volumes
14	Controlling and Troubleshooting the Boot Process Selecting a Boot Target, Repairing Common Boot Issues, Resetting a Lost root Password, Repairing File System Issues at Boot, Repairing Bootloader Issues
Text Books:	
1.	Red Hat RHCSA/RHCE 7 Cert Guide: Red Hat Enterprise Linux 7 (Ex200 and Ex300) by Sander van Vugt
Reference Books:	
1	Linux Administration Cookbook: Insightful Recipes To Work With System Administration Tasks On Linux by Adam K. Dean

Course Outcomes:												
COs	Description											
CO1	Apply partition concepts to resolve storage related issues											
CO2	Design and configure different servers based on the company requirements											
CO3	Manage the network resources and security policy of an organizations											
CO4	Implement various system administration related tasks automatically											
Mapping of CO and PO:												
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	1	2	1	1	3	3	2	3
CO2	3	2	2	3	2	2	1	1	2	3	3	3
CO3	3	3	2	2	1	2	1	1	3	2	3	2
CO4	3	2	2	3	2	1	2	1	2	3	2	2