

GANPAT UNIVERSITY									
FACULTY OF COMPUTER APPLICATION									
Programme	BACHLOR OF SCIENCE IN INFORMATION TECHNOLOGY (INFRASTRUCTURE MANAGEMENT SERVICES) – BSC-IT (IMS)				Branch/Spec.	COMPUTER APPLICATION			
Semester	III				Version				
Effective from Academic Year	2015-16				Effective for the batch Admitted in	Jan 2016			
Subject code	U43A1IIM	Subject Name			Internetwork Implementation & Maintenance				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	2	-	4	Theory	20	30	50
Hours	2	-	4	-	6	Practical	40	60	100
Pre-requisites: Basic concepts of Networking, OSI Layers and its Devices.									
Learning Outcome: This paper will provide the knowledge of Routing and Switching concepts.									
Theory syllabus									
Unit	Content								Hrs
1	Network Basics Internetwork basics , OSI , Ethernet , TCP/IP , IP Addressing , Subnetting , VLSM , troubleshooting TCP/IP								15
2	Managing IOS , Routers , SDM Understanding OSPF Fundamentals, Configuring OSPF within Single Area, Cost, Understanding the differences between OSPF Network Types, Using OSPF Across Multiple Area- Features, Router Types, Link- State Advertisements, Different Types Of Areas, Propagation of LSAs, Special OSPF Area, Authentication, Wan topologies of OSPF								15
3	IP Routing Routing basics and process , types of routing , routing protocols , Protocol dependent modules , network discovery , VLSM support , Route discovery and maintenance , EIGRP- OSPF basics , configuring EIGRP, OSPF , load balancing with EIGRP, verifying and Troubleshooting EIGRP,OSPF								25
4	Switching, VLAN Switching Services, STP, Configuring Catalyst Switches, CNA, VLAN Basics, Membership, VLAN Trunking Protocol, Configuration of VLAN, VTP, Configuring Inter VLAN								16
5	Security, NAT, Wireless Technology, IPV6, WAN Security, Threats, Introduction to ACL, Types of ACL, Monitoring Access lists, NAT Basics, Types of NAT, Configuring, Testing & Troubleshooting NAT, Introduction to Wireless Technology, Basics of IPV6, Configuring Routers with IPV6, WAN basics, WAN connection types, WAN protocols, Frame Relay, VPN basics.								25
Practical content									
Text Books									
1	CCNA Todd Lammle- Wiley Publishing, Inc.								

Reference Books	
1	
2	
Practical content	
List of programs on the above mentioned topics as per decided by subject faculty	
Paper Structure	
	<p>Attempt any FIVE out of SEVEN: Each Question must be 03 marks --- 15Marks Questions must be covered all possible section. Must be from topics: Network Basics, Managing IOS , Routers , SDM --- 06Marks Q-3 Must be from topics: IP Routing, Switching, VLAN --- 04Marks Q-4 Must be From topics : Security, NAT, Wireless Technology, IPV6, WAN --- 05Marks</p>

Note:

Version 1.0.0.0 (First Digit= New syllabus/Revision in Full Syllabus, Second Digit=Revision in Teaching Scheme,Third Digit=Revision in Exam Scheme, Forth Digit= Content Revision)

L=Lecture, TU=Tutorial, P= Practical/Lab., TW= Term work, DT= Direct Teaching, Lab.= Laboratory work

CE= Continuous Evaluation, SEE= Semester End Examination

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Semester	III				Version	1.0.0.0			
Effective from Academic Year	2015-16				Effective for the batch Admitted in	June 2015			
Subject code	U43A2LSN M		Subject Name:-		Server Network Infrastructure Management-I				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	2	-	4	Theory	20	30	50
Hours	2	-	4		6	Practical	40	60	100
Pre-requisites:									
<ol style="list-style-type: none"> 1. Student should have knowledge about the client server architecture and also have different network topology. 2. Student should have knowledge about IP Address and different classes. 									
Learning Outcome:									
<ol style="list-style-type: none"> 1. The main purpose of this subject is student easily maintain the small and large scale organization in real life scenario. 2. Student also can easily know about the different roles and feature which is offered by the server 2008 r2. 									
Theory syllabus									
Unit	Content								Hrs
1	Basics of IP, Name Resolution								10
	Understanding & Configuring Network Connection, IPv4 Addressing, IPv6 Addressing, Configuring Name Resolution, Understanding Name Resolution , hosts file , lmhost , LLMNR , NetBIOS, DNS Name Resolution, DNS query process , Deploying DNS , Configuring DNS Client Settings, Managing DNS client Cache , creating zone , resource records , Zone replication and transfer configuration , implementing stub zone , secondary zones								
2	DHCP, IP routing IPsec in windows 2008								10
	Understanding DHCP address , DHCP messages , DHCP process , deploying DHCP , Configuring DHCP server and options , troubleshooting DHCP , Routing overview , Routing Protocols , Analyzing and configuring routing , Basics of IPsec , authentication methods for IPsec , Assigning predefined IPsec policy , creating and deploying new IPsec policy								
3	Configuring to Networks , Network security , Monitoring with windows 2008 server								10
	Configuring Network Address Translation , Wireless Networks , Wireless Networking Concepts , Standards , security standards , connecting to remote networks , remote access , dial-up , VPN , troubleshooting VPN , Connection restrictions , Basics of Firewall , Firewall Profiles , Inbound and Outbound traffic , configuring scope , Firewall settings with Group Policy , Logging for windows , Identifying Network Communications , Configuring Windows firewall , Planning-								

	concepts and managing NAP , NAP logging , Monitoring event logs , performance and reliability , Network monitor	
4	Managing Files and Printers with 2008 server	10
	Managing file security , sharing folders , quotas , DFS overview , offline files , backup and restore files , Managing Printers , Installing – sharing configuring printer drivers , Printer permissions , printer pooling , priorities , internet printing , deploying printers with group policy	
Practical content		
Text Books		
1	1. Configuring Windows Server 2008 Network Infrastructure By J.C. Mackin and Tony Northrup- Microsoft Press Publisher	
Reference Books		
1	No reference book	
Paper structure		
	-1 (Attempt any Five Out of Seven : each question must be of 03 marks) --- 15 Questions must be covered all possible section. (Must be From topics : Basics of IP, Name Resolution (03 marks)) (Must be From topics : DHCP, IP routing IPSec in windows 2008 server (05 marks)) (Must be From topics : Configuring to Networks , Network security , Monitoring with windows 2008 server (04 marks)) (Must be From topics : Managing Files and Printers with 2008 server (03 marks))	

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Semester	III	Version	0.0.1.0						
Effective from Academic Year	2015-16	Effective for the batch Admitted in	June 2015						
Subject code	U43A3AOS2	Subject Name	Advanced Operating System – II						
Teaching scheme				Examination scheme (Marks)					
(Per week)	Lecture(DT)	Practical(Lab.)	Total		CE	SEE	Total		
	L	TU	P	TW					
Credit	2	-	2	-	4	Theory	20	30	50
Hours	2	-	4	-	6	Practical	40	60	100
Pre-requisites:									
Basic knowledge of operating system Knowledge of file systems of Linux/Unix operating systems									
Learning Outcome:									
One of the main objectives of teaching this subject is to make the students aware about the Open Source technologies. Unlike Microsoft's windows server operating systems, Linux operating systems are providing free and redistributable platform, so students can modify existing services and establish their own infrastructure and implement/redistribute them as well.									
Theory syllabus									
Unit	Content							Hrs	
1	System Performance-Security-Service Access Control-Network Resource Access Control in Redhat Linux Goals , Security Domains , System Faults , System Faults Analysis Methods , Benefit of maintaining system state , Networking-data storage and processing resource concerns , Log file analysis , Understanding service management , Service configuration resources , Implement Access Control , SELinux Overview , SELinux management , IP and IP routing , Compare IPv4 and IPv6 , Netfilter architecture , iptables , NAT							20	
2	Organizing Network System , NFS , SAMBA , Web Services in Redhat Linux Host name resolutions , verification of DNS server operation , BIND DNS configuration , DHCP Overview , DHCP configuration , Describe FTP service , Network File Sharing , Samba Service , client tool with each service , features of Apache HTTP server , configure important Apache parameters , per-directory configuration , CGI use with Apache , Identify key modules , Introduction to proxy web servers							20	
3	Mail Services , Securing Data , Account Management with Redhat Linux Understanding email Operations , Basic configuration of mail server , configuring proc mail – dovecot , Debug email services , Fundamental of encryption protocols encryptions with redhatlinux , configure encryption services for common networking protocols , basics of authentication , Understanding the Roles of NSS and PAM							20	

Practical content	
List of programs on the above-mentioned topics as per decided by subject faculty	
Text Books	
1	Linux Bible By: Christopher Negus- Wiley Publishing, Inc.
Reference Books	
1	Redhat Linux Networking and System Admin By: Terry Collings and Kurt Wall-M&T Books
<p>Paper Structure</p> <p>(Attempt any Five Out of Seven : each question must be of 03 marks) --- 15 Questions must be covered all possible section. (Must be From topics : System Performance-Security-Service Access Control-Network Resource Access Control in Redhat Linux(05 marks)) (Must be From topics : Organizing Network System , NFS , SAMBA , Web Services in Redhat Linux (05 marks)) (Must be From topics : Mail Services , Securing Data , Account Management with Redhat Linux (05 marks))</p>	

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Semester	III				Version	1.0.0.0			
Effective from Academic Year	2016-17				Effective for the batch Admitted in				
Subject code	U43A4ISS		Subject Name		INTRODUCTION TO SHELL SCRIPTING				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total	CE	SEE	Total	
	L	TU	P	TW					
Credit	3	0	1		4	Theory	20	30	50
Hours	3	0	2		5	Practical	40	60	100
Pre-requisites:									
Basic knowledge of the C Programming.									
Learning Outcome:									
Knowledge of Linux Environment. How to uses various command for creates & kills process.									
Theory syllabus									
Unit	Content								Hrs
1	Introduction to Linux Environment , Operating the Shell , Files-Users and Shell Customization Origin of Linux , Files and File system , Directories , Inodes and Links , Pipe and Socket files , Device Files , Bash Keywords , Commands Basics , Command line editing , variable assignment and Displaying Messages , Multiple Commands , colon commands , Shell aliases , Bash Hash table , Long command lines								12
2	Script Basics , Variables , Expressions , Compound Commands Creating a script , header , Global Declaration , Sanity Checks , The Man Script , Cleanup , Stopping a script , input , Basic Redirection , Set and Shopt , enablecommand-read-suspend command switches , Variables Switches , variable Attributes ,Arrays , A story generator , file expressions , tests , strings , Expressions , Operations ,let features , pattern recognition , character classes , if , case , while , until , for loops								12
3	Debugging , Version Control , Parameters , Subshells , Job control , signals Shell debugging features , degug traps , CVS , creating transcripts , creating man pages , source code patches , shell archives , positional parameters , Subshells , Job control , Signals , traps , Exit Handlers , Killall , process status								12
4	Text File Basics-Processing , Console scripting , Functions and Script Execution File truncation , wget , splitting large files , temporary files , lock files , named pipes , process substitution , file statistics , finding lines , locating files , sorting , sed , Linux console , Console keyboard , console display , tput , select menu , custom menu , Linux execution environment , Source Command (.) , exec , Writing recurring scripts , Shell functions , local variables , Recursion and nested function , Function Attributes								12

5	Shell Security , Network Programming , Data structures and databases Basic Linux Security Model , id , chown/chgrp , chmod , setuid/setgid and scripts , chroot , ulimits , restricted shells , wipe , Sockets , client-Server and Peer-to-peer , Network clients , CGI scripts , CGI environment variables , Processing forms , lynx , hash tables using bash arrays, binary trees, psql, working with MySQL databases	12
Practical content		
List of programs on the above mentioned topics as per decided by subject faculty		
Text Books / Reference Books		
1	Linux Shell Scripting WithBashBy: Ken O Burch –Sams Publishing.	
2	Wicked Cool Shell Scripts By Dave Taylor- O'Reilly	
Paper Structure		
	<p>(Attempt any five Out of Seven : each question must be of05 marks) --- 15 Questions must be covered all possible section.</p> <p>(Must be From topics : Introduction to Linux Environment, Operating the Shell, Files-Users and Shell Customization (04 marks))</p> <p>(Must be From topics : Script Basics, Variables, Expressions, Compound Commands, Debugging, Version Control, Parameters, Subshells, Job control , signals (04 marks))</p> <p>(Must be From topics : Shell Text File Basics-Processing, Console scripting, Functions and Script Execution(04 marks))</p> <p>(Must be From topics : Shell Security, Network Programming, Data structures and databases (03 marks))</p>	

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Semester	III				Version	1.0.0.1			
Effective from Academic Year	2016-17				Effective for the batch Admitted in				
Subject code	U43A5IWT		Subject Name	Introduction to Wireless Technology					
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total	CE	SEE	Total	
	L	TU	P	TW					
Credit	2	-	2	-	4	Theory	40	60	100
Hours	2	-	4	-	6	Practical	20	30	50
Pre-requisites:									
Basic knowledge of networking.									
Learning Outcome:									
Able to manage wireless network and use of various wireless devices as per requirement.									
Theory syllabus									
Unit	Content								Hrs
1	Overview of Wireless, Radio Frequency, Antenna , IEEE 802.11 Standards Wireless Standards & Organization , communication fundamentals , basics of RF signals , RF characteristics-behaviors-components , Active and passive gain , Antenna types , Visual line of sight , RF line of sight , Fresnel Zone , Earth Bulge , Antenna Polarization , Antenna Diversity , Antenna Accessories , 802.11 Ratified Amendments , Draft Amendments								12
2	Wireless Networks and Spread Spectrum technologies , Wireless LAN topologies , Medium Access ISM bands , UNII , Narrowband and spread spectrum , FHSS , DSSS , OFDM , WWAN , WMAN , WPAN , WLAN , AP , Client stations , DS , WDS , SSID , BSS , BSSID , BSA ESS , IBSS , Nonstandard 802.11 topologies , Configuration Modes , Frame Types , Passive Scanning , Active Scanning , Authentication , Association , De-authentication								12
3	Wireless Devices , Network Design , Implementation , Management , WLAN troubleshooting Wireless LAN client devices , Progression of WLAN architecture , Speciality WLAN infrastructure Devices , POE , Bridging , WISP , SOHO , Mobile Office Networking , Public Network Access , 802.11 Coverage Consideration , Interference , Performance , Weather								12
4	Network Security Architecture , Wireless Attacks , Intrusion Monitoring and Policy Security Basics , Legacy with 802.11 Security , Authentication and Authorization , WPA/802.11i , Segmentation , Infrastructure Security , VPN wireless security , wireless attacks , WIDS , WIPS , Mobile WIDS , Wireless Security Policy								12
Text Books/ Reference Book									
1	1. CWNA By David D.Coleman and David A. Westcott- Wiley Publishing,Inc. 2. CWNA_labbook By David Davis-Train Signal,Inc Publisher.								

Paper Structure

Note for Examiner

must be common from any topics from syllabus.
and onwards must be from specific topics and internal choice or option can be given

Paper Structure

(Attempt any Six Out of Eight : each question must be 05 marks) --- 30

Questions must be covered all possible section.

(Must be From topics : Overview of Wireless, Radio Frequency, Antenna, IEEE 802.11 Standards (07 marks))

(Must be From topics : Wireless Networks and Spread Spectrum technologies, Wireless LAN topologies , Medium Access(07 marks))

(Must be From topics : Wireless Devices , Network Design, Implementation, Management , WLAN troubleshooting(08 marks))

(Must be From topics : Network Security Architecture, Wireless Attacks, Intrusion Monitoring and Policy (08 marks))

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Semester		III				Version		1.0.0.1		
Effective from Academic Year			2016-17			Effective for the batch Admitted in				
Subject code		U43A6IS		Subject Name		INFORMATION SECURITY				
Teaching scheme					Examination scheme (Marks)					
(Per week)	Lecture(DT)		Practical(Lab.)		Total	CE		SEE	Total	
	L	TU	P	TW						
Credit	3	0	-		3	Theory	40	60	100	
Hours	3	0	-		3	Practical	-	-	-	
Pre-requisites:										
Basic knowledge of basic security system.										
Learning Outcome:										
Knowledge of Advance security knowledge and maintain security policy.										
Theory syllabus										
Unit	Content								Hrs	
1	Basic Windows Security , Passwords , Viruses-worms and other malwares , patching (12) Introduction , why you are at risk ? , user account , security groups , windows services , password power , password cracking , storing your passwords , One Super-power full password , malware terms , history of malware , patch terminology , requirement of patch , precautions during patch								12	
2	Perimeter Security , Email safety , Web Surfing Privacy and safety , Wireless Network Security , Spyware and adware (18) Introduction to Perimeter , Firewalls and filters , types of Firewall , Intrusion Detection and prevention , Evolution of E-Mail , Email security concerns , hoaxes and phishing , the revolutionary WWW , Web security concerns , wireless network security measures , Additional hotspot security measure , basics of adware and spyware , getting Rid of spyware								18	
3	Keepings things secure , Disaster Strikes , Inside the Linux desktop (18) General PC maintenance , patches and updates , Windows xp and windows 7 security center , Check the event logs , Enable security auditing , scan your computer , restore your system , start your scratch , restore your data , common desktop environment , X windows system and windows manager , E-Mail and Personal information management clients , Migrating mail , Web browsers , Office application suites , Running windows application in linux								18	
Practical content										
List of programs on the above mentioned topics as per decided by subject faculty										
Text Books / Reference Books										
1	Essential Computer SecurityBy: Tony Bradley and Harlan Carvey –Syngress Publisher									
Paper Structure										
	Note for Examiner must be common from any topics from syllabus. and onwards must be from specific topics and internal choice or option can be given									

Paper Structure

(Attempt any Six Out of Eight : each question must be of 05 marks) --- 30 Questions must be covered all possible section.

(Must be From topics : Basic Windows Security , Passwords , Viruses-worms and other malwares , patching (10 marks))

(Must be From topics : Perimeter Security , Email safety , Web Surfing Privacy and safety , Wireless Network Security , Spyware and adware (12 marks))

(Must be From topics : Keepings things secure , Disaster Strikes , Inside the Linux desktop (08 marks))