

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/5
Branch	Information Technology			Semester	VI
Course Code		Course Name	Network Administration and Hardware Maintenance		
Course Outcome - 1	Make use of available techniques and resources required for network server administration			Teach Hrs	Marks
Learning Outcome 1	Explain client server system			6	10
Contents	<ul style="list-style-type: none"> ✓ Network Administration: Definition, Features, Need ✓ Network Server: Definition, Types ✓ Network Operating System: Features, Types, NOS Software ✓ Virtual Network: Concept & Features 				
Method of Assessment	External: End semester theory examination (Pen paper test).				
Learning Outcome 2	Outline Windows NT network domain terminologies			7	10
Contents	<ul style="list-style-type: none"> ✓ Domain Controller : Concept & Types ✓ Controlling Access: User Account & Right ✓ Network Browser Service: Concept, Browser Announcement and Request ✓ Overview of network terminologies : NetBIOS , Telnet Vs SSH, WLAN 				
Method of Assessment	Internal: Mid semester theory examination (Pen paper test).				
Learning Outcome 3	Make use of server operating system to assign administration roles for server in network.			8	10
Contents	<ul style="list-style-type: none"> • Install latest Window Server Operating System <ul style="list-style-type: none"> ✓ Build Domain Controller ✓ Add Active Directory Domain Services ✓ Server Roles etc. • Use of recent remote access software features like TeamViewer 				

Method of Assessment	Internal: Lab Observation/Assignment			
RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 2/5	
Branch	Information Technology	Semester	VI	
Course Code		Course Name	Network Administration and Hardware Maintenance	
Course Outcome - 2	Develop Client / Server network by configuring protocols		Teach Hrs	Mark s
Learning Outcome 4	Explain DHCP and DNS		6	10
	<ul style="list-style-type: none"> • DHCP: <ul style="list-style-type: none"> ✓ Concept, component, working process ✓ Comparison with RARP & BOOTP • DNS: <ul style="list-style-type: none"> ✓ Concept, working process ✓ Comparison with WINS 			
Method of Assessment	External: End semester theory examination (Pen paper test).			
Learning Outcome 5	Build small Client Server network		12	10
Contents	<ul style="list-style-type: none"> ✓ Design a small network by configure router, TCP/IP properties, IP address, subnet mask, default gateway statically on a Windows machine ✓ Configure and verify NTP/NTS operating in a client/server mode ✓ Configure DHCP (Dynamic Host Configuration Protocol). ✓ Configure DNS (Domain Name System). 			
Method of Assessment	Internal: Lab Observation/Assignment			
RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 3/5	

Branch	Information Technology			Semester	VI
Course Code		Course Name	Network Administration and Hardware Maintenance		
Course Outcome - 3	Identify strategies to perform administrative activities in Client Server Network			Teach Hrs	Marks
Learning Outcome 6	Explain Remoteboot process			6	10
Contents	Remoteboot ✓ Concept ✓ Importance ✓ Remoteboot Process				
Method of Assessment	External: End semester theory examination (Pen paper test).				
Learning Outcome 7	Outline various troubleshooting tools and strategies			6	10
Contents	<ul style="list-style-type: none"> • Network Troubleshooting: <ul style="list-style-type: none"> ✓ Overview ✓ Need • TCP/IP Diagnostic Utilities: <ul style="list-style-type: none"> ✓ ipconfig, ping ✓ Address and name resolution ✓ IP Routing: The Route Table, Network Address, Netmask, Gateway Address, Metric, Load Balancing and Route Backup ✓ Other Troubleshooting : Error 53, Telnet 				
Method of Assessment	External: End semester theory examination (Pen paper test).				
Learning Outcome 8	Apply network troubleshooting activities			14	10
Contents	<ul style="list-style-type: none"> ✓ Install and configure available network monitoring tool. ✓ Identify the TCP/IP Configuration by Using ipconfig ✓ Test Connection to the TCP/IP Network by Using Ping ✓ Troubleshoot NetBIOS name resolution by Using NBTStat ✓ Test IP-address-to-MAC-address Resolution by Using ARP ✓ Display current TCP/IP Connections and Statistics by Using Netstat 				

	<ul style="list-style-type: none"> ✓ Setting Up and Starting the Remoteboot Service Installing the Remoteboot Service on machine perform adding and deleting client ✓ Configuring Remote Access - Telnet & SSH ✓ SNMP troubleshooting 		
Method of Assessment	External: Laboratory observation and viva voce		
RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 4/5
Branch	Information Technology	Semester	VI
Course Code		Course Name	Network Administration and Hardware Maintenance
Course Outcome - 4	Identify and handling of internal components of PC	Teach Hrs	Marks
Learning Outcome 9	Explain motherboard	6	10
Contents	Motherboard: <ul style="list-style-type: none"> ✓ Definition, Architecture ✓ Compatibility with CPU's, CPU Sockets, Chipset, FSB, BSB ✓ Interface Port: I/O Ports (PS/2, Serial, Parallel, USB, VGA, HDMI, Audio, Ethernet) ✓ Form factors & Power supplies - AT, ATX, LPX & NLX, Voltage & Signal Lines 		
Method of Assessment	External: End semester theory examination (Pen paper test).		
Learning Outcome 10	Explain SMPS, Personal Computer Cabinets & Protection	6	10
Contents	<ul style="list-style-type: none"> • Switched Mode Power Supply: <ul style="list-style-type: none"> ✓ Block diagram, working principles, power rating ✓ Requirement of SMPS wattage depending parameters like processor, HDDs used ✓ SMPS Vs UPS • Various types of cabinets of PC <ul style="list-style-type: none"> ✓ Gaming PCs ✓ Server cabinets: Rack mount and blade servers • Protection of PC hardware: 		

	<ul style="list-style-type: none"> ✓ Anti static wrist band ✓ protection and safety devices 				
Method of Assessment	Internal: Mid semester theory examination (Pen paper test).				
Learning Outcome 11	Explain Central Processing Unit	6	10		
Contents	<ul style="list-style-type: none"> ✓ Processor Specification – Clock Speed, FSB, L1, L2 & L3 cache, Processor over clocking ✓ CPU Packaging – DIP, PGA, SPGA, MCM, LCC, PLCC & Tape Carrier Package. ✓ CPU Family: Intel, AMD 				
Method of Assessment	External: End semester theory examination (Pen paper test).				
Learning Outcome 12	Identify test and troubleshoot PC Component	12	10		
Contents	Identify, testing and troubleshooting of internal components in the PC Cabinets like SMPS, Motherboard(ATX motherboard, connector, display connector, Chipset, Expansion Slots (PCI, AGP),memory slot, CPU, Cooling fan)				
Method of Assessment	External: Laboratory observation and viva voce				
RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 5/5
Branch	Information Technology		Semester	VI	
Course Code		Course Name	Network Administration and Hardware Maintenance		
Course Outcome - 5	Identification and maintenance of computer components		Teach Hrs	Mark s	
Learning Outcome 13	Explain memory component of computer		6	10	
Contents	Memory: <ul style="list-style-type: none"> ✓ ROM: PROM, EPROM, EEPROM ✓ RAM: SRAM, DRAM, SDRAM, DDR2, DDR3, DDR4, VRAM, 				

	<p>Memory Package: SIMM, DIMM</p> <ul style="list-style-type: none"> ✓ Virtual memory ✓ HDD, SSD and its interface: IDE, SATA, e-SATA ✓ External memory: Online Cloud Storage (like Google drive) ✓ HDD controllers: Introduction, SCSI controllers and RAID controllers, Requirement and Configuration.
Method of Assessment	External: End semester theory examination (Pen paper test).
Learning Outcome 14	Explain BIOS and CMOS 5 10
Contents	<ul style="list-style-type: none"> • BIOS: <ul style="list-style-type: none"> ✓ Introduction, Dual BIOS Feature, Booting Sequence/Boot Order, Firmware upgrade, BIOS Functions, Cold & Warm Booting, BIOS Error Codes, BIOS Interrupts • CMOS: <ul style="list-style-type: none"> ✓ Introduction, CMOS Battery rating
Method of Assessment	Internal: Mid semester/Short Answer/Quiz theory examination (Pen paper).
Learning Outcome 15	Apply troubleshooting and maintenance activities for PC 14 10
Contents	<ul style="list-style-type: none"> • Identification of components and assembling of PC • Perform BIOS/CMOS Setup • Troubleshooting Activities <ul style="list-style-type: none"> ✓ Battery replacement on motherboard in case BIOS is not retaining correct values ✓ Error Codes- Beep Codes, Post Codes ✓ Troubleshoot common video and display issues • Maintenance Activity <ul style="list-style-type: none"> ✓ Back Up, Disk Clean Up, Disk Defragmenter, Files and Settings Transfer Wizard, Scheduled Tasks, Security Centre System Information, System Restore, Memory modules, memory slots, Hard Disc Drives, CDROM/DVD/Blue-Ray Disc. CDROM, DVD lens cleaning or replacement
Method of Assessment	External: Laboratory observation and viva voce

NOTE: *"available" means latest tools / technology, since tools name mentioned as per current industry trends that may get change over course of time hence faculties are not restricted to teach or follow tools as mentioned, faculties can have their option with change of tool technology

REFERENCE BOOKS:

S No	Title & Publication	Author
1	TCP/IP Protocol Suite, TMH	Forouzan
2	Principles of Network & System Administration, 2 nd Edition, Wiley Publication	Mark Burgess
3.	Network Management Concept and Practice, PHI	J.Richard Burkey,
4.	Computer Hardware: Installation, Interfacing, Troubleshooting and Maintenance, PHI	K.L. James
5.	https://wordwall.net/resource/245409/computing/motherboard	Web resource
6.	https://wordwall.net/resource/139563/computing/computer-motherboard	Web resource
7.	https://oli.cmu.edu/courses/pc-hardware-open-free/	Web resource
8.	https://www.javatpoint.com	Web resource
9.	https://www.putty.org/	Web resource
10.	https://www.zabbix.com/network_monitoring	Network Monitoring tool
11.	E-books/E-tools/Relevant software to be used as recommended by AICTE/RGPV	

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				1	1	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Make use of available techniques and resources required for network server administration											
LO Description		Explain client server system											
SCHEME OF STUDY													
S. No.	Learning Content			Teaching – Learning Method		Description of T-L Process		Teac h Hrs.	Pract. /Tut Hrs.	LRs Required		Remarks	
1	<ul style="list-style-type: none"> • Network Administration: Definition, Features, Need • Network Server: Definition, Types • Network Operating System: Features, Types, NOS Software • Virtual Network: Concept & Features 			Interactive classroom teaching, demonstration, quiz, assignments, tutorial		Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.		6	NIL	Handouts, chalk board, PPT, text book, charts, video film.			
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment		Description of Assessment			Maximum Marks		Resources Required			External / Internal		
1	End semester theory examination		Pen Paper Test			10		Question paper + Rating scale			External		
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				1	2	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Make use of available techniques and resources required for network server administration											
LO Description		Outline Windows NT network domain terminologies											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Domain Controller : Concept & Types Controlling Access: User Account & Right Network Browser Service: Concept, Browser Announcement and Request Overview of network terminologies : NetBIOS , Telnet Vs SSH, WLAN 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	7	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Mid semester theory examination (Pen paper test).	Pen Paper Test	10	Test Paper + rating scale			Internal						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				1	3	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Make use of available techniques and resources required for network server administration											
LO Description		Make use of server operating system to assign administration roles for server in network.											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Install latest Window Server Operating System <ul style="list-style-type: none"> ✓ Build Domain Controller ✓ Add Active Directory Domain Services ✓ Server Roles etc. Use of recent remote access software features like TeamViewer 	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	8	Handouts, chalk board, PPT, text book, charts, Computers							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal								
1	Lab Observation/Assignment	Student will be asked about server role and asked to perform task of remote service.	10	Observation schedule/check-list /rating scales /rubrics	Internal								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Faculties install latest server operating system and demonstrate different role for server to students													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				2	4	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Develop Client / Server network by configuring protocols											
LO Description		Explain DHCP and DNS											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> • DHCP: <ul style="list-style-type: none"> ✓ Concept, component, working process ✓ Comparison with RARP & BOOTP • DNS: <ul style="list-style-type: none"> ✓ Concept, working process ✓ Comparison with WINS 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	6	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				2	5	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Develop Client / Server network by configuring protocols											
LO Description		Build small Client Server network											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Design a small network by configure router, TCP/IP properties, IP address, subnet mask, default gateway statically on a Windows machine Configure and verify NTP/NTS operating in a client/server mode Configure DHCP (Dynamic Host Configuration Protocol). Configure DNS (Domain Name System). 	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	12	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Lab Observation/Assignment	Student asked to design small network	10	Observation schedule/check-list /rating scales /rubrics			Internal						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
<ul style="list-style-type: none"> Faculties are instructed to construct small client server based network with router / switches and making one system as server for administration purpose and configure DHCP and DNS as per selected role Faculties may use simulation tools also to demonstrate the Client Server network 													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				3	6	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identify strategies to perform administrative activities in Client Server Network											
LO Description		Explain Remoteboot process											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Remoteboot: <ul style="list-style-type: none"> • Concept • Importance • Remoteboot Process 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	6	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				3	7	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identify strategies to perform administrative activities in Client Server Network											
LO Description		Outline various troubleshooting tools and strategies											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> • Network Troubleshooting: <ul style="list-style-type: none"> ✓ Overview ✓ Need • TCP/IP Diagnostic Utilities: <ul style="list-style-type: none"> ✓ ipconfig, ping ✓ Address and name resolution ✓ IP Routing: The Route Table, Network Address, Netmask, Gateway Address, Metric, Load Balancing and Route Backup ✓ Other Troubleshooting : Error 53, Telnet 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	6	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required				External / Internal					
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale				External					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				3	8	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identify strategies to perform administrative activities in Client Server Network											
LO Description		Apply network troubleshooting activities											
SCHEME OF STUDY													
S. No.	Learning Content		Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks					
1	<ul style="list-style-type: none"> Install and configure available network monitoring tool. Identify the TCP/IP Configuration by Using ipconfig Test Connection to the TCP/IP Network by Using Ping Troubleshoot NetBIOS name resolution by Using NBTStat Test IP-address-to-MAC-address Resolution by Using ARP Display current TCP/IP Connections and Statistics by Using Netstat Setting Up and Starting the Remoteboot Service Installing the Remoteboot Service on machine perform adding and deleting client Configuring Remote Access - Telnet & SSH SNMP troubleshooting 		Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	14	Handouts, chalk board, PPT, text book, charts, video film.						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Laboratory test by observation	Laboratory observation and viva voce	10	Observation schedule/check-list /rating scales /rubrics			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Faculty installs available network monitoring tools on server machine and configures client system. (https://www.zabbix.com/network_monitoring)													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				4	9	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identify and handling of internal components of PC											
LO Description		Explain motherboard											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Motherboard: <ul style="list-style-type: none"> ✓ Definition, Architecture ✓ Compatibility with CPU's, CPU Sockets, Chipset, FSB, BSB ✓ Interface Port: I/O Ports (PS/2, Serial, Parallel, USB, VGA, HDMI, Audio, Ethernet) ✓ Form factors & Power supplies - AT, ATX, LPX & NLX, Voltage & Signal Lines 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	6	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				4	10	
Course Name	Network Administration and Hardware Maintenance												
CO Description	Identify and handling of internal components of PC												
LO Description	Explain SMPS, Personal Computer Cabinets & Protection												
SCHEME OF STUDY													
S. No.	Learning Content				Teaching – Learning Method		Description of T-L Process		Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks	
1	<ul style="list-style-type: none"> • Switched Mode Power Supply: <ul style="list-style-type: none"> ✓ Block diagram, working principles, power rating ✓ Requirement of SMPS wattage depending parameters like processor, HDDs used ✓ SMPS Vs UPS • Various types of cabinets of PC <ul style="list-style-type: none"> ✓ Gaming PCs ✓ Server cabinets: Rack mount and blade servers • Protection of PC hardware: <ul style="list-style-type: none"> ✓ Anti static wrist band ✓ protection and safety devices 				Interactive classroom teaching, demonstration, quiz, assignments, tutorial		Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.		6	NIL	Handouts, chalk board, PPT, text book, charts, video film.		
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment			Maximum Marks	Resources Required				External / Internal			
1	Quiz/ Short Answer type questions	Pen Paper / Quiz			10	Pen paper test + rating scale				Internal			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				4	11	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identify and handling of internal components of PC											
LO Description		Explain Central Processing Unit											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Processor Specification – Clock Speed, FSB, L1, L2 & L3 cache, Processor over clocking CPU Packaging – DIP, PGA, SPGA, MCM, LCC, PLCC & Tape Carrier Package. CPU Family: Intel, AMD 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	6	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				4	12	
Course Name	Network Administration and Hardware Maintenance												
CO Description	Identify and handling of internal components of PC												
LO Description	Identify test and troubleshoot PC Component												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Identify, testing and troubleshooting of internal components in the PC Cabinets like SMPS, Motherboard(ATX motherboard, connector, display connector, Chipset, Expansion Slots (PCI, AGP),memory slot, CPU, Cooling fan)	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	12	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Laboratory observation and viva voce.	Student asked to identify and troubleshoot method about internal component of computers	10	Observation schedule/check-list /rating scales /rubrics			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Faculty may visit some web resources https://wordwall.net/resource/139563/computing/computer-motherboard or https://wordwall.net/resource/245409/computing/motherboard													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				5	13	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identification and maintenance of computer components											
LO Description		Explain memory component of computer											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Memory: <ul style="list-style-type: none"> ✓ ROM: PROM, EPROM, EEPROM ✓ RAM: SRAM, DRAM, SDRAM, DDR2, DDR3, DDR4, VRAM, Memory Package: SIMM, DIMM ✓ Virtual memory ✓ HDD, SSD and its interface: IDE, SATA, e-SATA ✓ External memory: Online Cloud Storage (like Google drive) ✓ HDD controllers: Introduction, SCSI controllers and RAID controllers, Requirement and Configuration. 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	6	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	End semester theory examination	Pen Paper Test	10	Question paper + rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				5	14	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identification and maintenance of computer components											
LO Description		Explain BIOS and CMOS											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required						Remarks	
1	<ul style="list-style-type: none"> BIOS: Introduction, Dual BIOS Feature, Booting Sequence/Boot Order, Firmware upgrade, BIOS Functions, Cold & Warm Booting, BIOS Error Codes, BIOS Interrupts CMOS: Introduction, CMOS Battery rating 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/quiz/tutorial to make students practice their knowledge.	5	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required					External / Internal			
1	Quiz/ Short Answer type questions	Pen Paper / Quiz		10	Pen paper test + rating scale					Internal			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4				5	15	
Course Name		Network Administration and Hardware Maintenance											
CO Description		Identification and maintenance of computer components											
LO Description		Apply troubleshooting and maintenance activities for PC											
SCHEME OF STUDY													
S. No.	Learning Content				Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks			
1	<ul style="list-style-type: none"> • Identification of components and assembling of PC • Perform BIOS/CMOS Setup • Troubleshooting Activities: <ul style="list-style-type: none"> ✓ Battery replacement on motherboard in case BIOS is not retaining correct values ✓ Error Codes- Beep Codes, Post Codes ✓ Troubleshoot common video and display issues • Maintenance Activity: <ul style="list-style-type: none"> ✓ Back Up, Disk Clean Up, Disk Defragmenter, Files and Settings Transfer Wizard, Scheduled Tasks, Security Centre System Information, System Restore, Memory modules, memory slots, Hard Disc Drives, CDROM/DVD/Blue-Ray Disc. CDROM, DVD lens cleaning or replacement 				Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	14	Handouts, chalk board, PPT, text book, charts, Computer				
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment			Maximum Marks	Resources Required			External / Internal				
1	Laboratory test by observation	Laboratory observation and viva voce			10	Observation schedule/check-list /rating scales /rubrics			External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Faculties demonstrate the maintenance activities of PC , windows operating system , faculties may use simulation technique to do the same													