RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR Computer Network		FORMAT-3	Sheet No. 1/3
Branch	**Computer Science and Engineering**		**Semester**	**IV**
Course Code	402	**Course Name**		**Computer Network**
Course Outcome 1	**Describe basic concept of computer network.**		**Hrs**	**Marks**
Learning Outcome 1	Explain definition and benefits of computer network.		12	15
Contents	Introduction and Definition of computer network, Need of Computer Network, Applications, and Component of Computer Network. Network Benefits- Sharing Information (File Sharing, E-mail) - Sharing Resources (Printer Sharing, Application Services) - Facilitating Centralized Management-Managing Software, Maintaining the Network, Backing up data.			
Method of Assessment	**Question Paper -External- End Sem Exam**			
Learning Outcome 2	To classify different types of computer network and understand server concept.		10	15
Contents	Computer Network Classifications- Classification of Network by their Geography.-PAN, CAN, LAN, MAN, WAN, Classification of Network by their Component Role--Peer-to-Peer Network, Server-Based Network, Types of server.			
Method of Assessment	**Question Paper -External- End Sem Exam**			
Learning Outcome 3	To Learn and apply different network architecture of computer network.		08	15
Contents	Installation, Up gradation, Troubleshooting of window network, Device Driver Installation, BIOS Setup, Installation and Troubleshooting devices.			
Method of Assessment	**External Exam Practical**			

Course Outcome 2	Use network Devices, drivers and media.	Hrs	Marks
Learning Outcome 1	To Understand and use network devices.	11	10
Contents	Need of Network Control devices, Role of Network Control devices in a Network, Connectors, Hub, Repeater, Bridges, Switches, Router, Gateway, and Modem.		
Method of Assessment	**Question Paper–Internal Assignment- Progressive**		
Learning Outcome 2	Learn device control and software to manage network.	09	15
Contents	NIC Device Driver, client-server, Software, telnet, ftp, firewall-software and hardware, types of firewall and management.		
Method of Assessment	**External Exam Practical**		
Learning Outcome 3	TO understand different types of media and their selection.	**14**	**15**
Contents	Need of Transmission Media, Selection Criteria. Types of Transmission Media- 1) Guided Media: Cable Characteristics, Types of Cable-Twisted Pair Cable, Co-axial Cable, Fiber Optic Cable. 2) Unguided media: Types of Communication Band-Microwave Communication, Radio wave Communication, Satellite Communication, Infrared Communication.		
Method of Assessment	**Question Paper -External- End Sem Exam**		
Course Outcome 3	To understand OSI model, tcp/ip protocol suite and types of wireless network.	Hrs	Marks
Learning Outcome 1	Explain OSI Reference Model Concept.	08	15
Contents	Introduction OSI model – Layered Architecture , Peer-to- Peer Processes, Interfaces between Layer, Protocols, Organization of the Layers, Encapsulation. Layers of the OSI Reference Model (Functions of each Layer &Protocols used) – Physical Layer, Data-Link Layer, Network Layer, Transport Layer, Session Layer, Presentation Layer, Application		

	Layer.		
Method of Assessment	**Question Paper -External- End Sem Exam**		
Learning Outcome 2	To learn TCP/IP protocol suite.	8	10
Contents	Layers in the TCP/IP Protocol Suite, Comparison between OSI and TCP/IP Protocol Suite, Addressing- physical address, logical address and port address.		
Method of Assessment	**Question Paper–Internal Assignment- Progressive**		
Learning Outcome 3	To study of IP addressing and internet protocol versions(IPV4 and IPV6)	12	10
Contents	IP Address classes, classless IP addressing, Subnetting, supernetting, Masking. : Host-to-Network-SLIP and PPP, Internet Layer-ARP, RARP and IP: Introduction, IPv4, IPv6 (Header Format), Difference between IPv4 & IPv6.		
Method of Assessment	**Internal marks lab**		
Course Outcome 4	**To understand concept of wireless Network, management and Routing.**	Hrs	Marks
Learning Outcome 1	To learn different architecture in wireless network.	09	10
Contents	Bluetooth Architecture, Wi-Fi, Wi- Max, and Cellular (Mobile) Telephone - Band in Cellular Telephony, Calls Using Mobile Phones, Transmitting receiving / Handoff operations.		
Method of Assessment	**Internal Assignment term**		
Learning Outcome 2	Explain concept of network management.	09	10
Contents	Simple network management protocol (SNMP), SNMP component, SNMP messages, SNMP Version, Network monitoring tools and software.		

Method of Assessment	Internal marks lab		
Learning Outcome 3	Describe routing algorithm for computer network.	10	10
Contents	Routing, Routing Metrics, Types of Routing, Link-state and distance vector routing, difference between RIP and OSPF.		
Method of Assessment	**Question Paper -External- End Sem Exam**		

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code		Course Code			CO Code	LO Code	Format No. 4
		C	0	4	4	0	2	1	1	

COURSE NAME	Computer Network
CO-1 Description	Describe basic concept of computer network.
LO-1 Description	Explain definition and benefits of computer network.

<div align="center">SCHEME OF STUDY</div>

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Introduction and Definition of computer network, Need of Computer Network, Applications, and Component of Computer Network. Network Benefits- Sharing Information(File Sharing, E-mail) - Sharing Resources (Printer Sharing, Application Services) - Facilitating Centralized Management-Managing Software, Maintaining the Network, Backing up data	Traditional lecture method and handouts, presentation.	Teacher will explain the contents and provide handout to students. Teacher will conduct some practical to make students practice their knowledge.	10	02	Handouts/Lab manual	NIL

<div align="center">SCHEME OF ASSESSMENT</div>

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Question Paper -External- End Sem Exam	Question Answer	15	-	External

<div align="center">ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)</div>

<div align="center">**NIL**</div>

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code		Course Code		CO Code	LO Code	Format No. 4
		C	0	4 4	0 2	1	2	

COURSE NAME	Computer Network
CO-1 Description	Describe basic concept of computer network.
LO-2 Description	To classify different types of computer network and understand server concept.

<div align="center">SCHEME OF STUDY</div>

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
2	Computer Network Classifications- Classification of Network by their Geography.-PAN, CAN, LAN, MAN, WAN Classification of Network by their Component Role--Peer-to-Peer Network, Server-Based Network, Types of server	Traditional lecture method and handouts, presentation	Teacher will explain the contents and provide handout to students. Teacher will conduct some practical based on content to make students practice their knowledge.	08	02	Handouts/Lab manual	NIL

<div align="center">SCHEME OF ASSESSMENT</div>

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Question Paper -External- End Sem Exam	Theory questions	15	-	External

<div align="center">ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)</div>

<div align="center">**NIL**</div>

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		C	0	4	4	0	2	1	3	

COURSE NAME	Computer Network
CO-1 Description	Describe basic concept of computer network.
LO-3 Description	To Learn and apply different network architecture of computer network.

SCHEME OF STUDY

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Installation, Up gradation, Troubleshooting of window network, Device Driver Installation, BIOS Setup, Installation and Troubleshooting devices.	Presentation , handouts, Vlabs	Teacher will explain the contents and provide handout to students. Teacher will conduct some practical based on content to make students practice their knowledge.	02	06	Handouts/Lab manual	NIL

SCHEME OF ASSESSMENT

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	External Exam Practical	Students will be asked to write a program	15	-	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
		C	0	4	4	0	2	2	1

COURSE NAME	Computer Network
CO-2 Description	Use network Devices, drivers and media.
LO-1 Description	To Understand and use network devices.

SCHEME OF STUDY

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Need of Network Control devices, Role of Network Control devices in a Network, Connectors, Hub, Repeater, Bridges, Switches, Router, Gateway, and Modem.	Traditional lecture method and handouts	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge.	10	01	handouts	NIL

SCHEME OF ASSESSMENT

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Question Paper–Internal Assignment- Progressive	Question Answers	10	-	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
		C	0	4	4	0	2	2	2	

COURSE NAME	Computer Network
CO-2 Description	Use network Devices, drivers and media.
LO-2 Description	Learn device control and software to manage network.

<div align="center">SCHEME OF STUDY</div>

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	NIC Device Driver, client-server Software, telnet, ftp, firewall - software and hardware, types of firewall and management.	Lab practical with traditional lecture and presentation method and handouts	Teacher will explain the contents and provide handout to students. Teacher will conduct some practical based on content to make students practice their knowledge.	02	07	Handouts/ Lab Manual	NIL

<div align="center">SCHEME OF ASSESSMENT</div>

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	External Exam Practical	Students will be asked to write programs	15	-	External

<div align="center">ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)</div>

<div align="center">NIL</div>

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code		Course Code			CO Code	LO Code	Format No. 4
		C	0	4	4	0	2	2	3	

COURSE NAME	Computer Network
CO-2 Description	Use network Devices, drivers and media.
LO-3 Description	TO understand different types of media and their selection.

<div align="center">SCHEME OF STUDY</div>

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Need of Transmission Media, Selection Criteria. Types of Transmission Media- 1) Guided Media: Cable Characteristics, Types of Cable- Twisted Pair Cable, Co-axial Cable, Fiber Optic Cable. 2) Unguided media: Types of Communication Band- Microwave Communication, Radio wave Communication, Satellite Communication, Infrared Communication.	Lab practical with traditional lecture method and handouts, presentation	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge.	12	02	Handouts/ Lab manual	NIL

<div align="center">SCHEME OF ASSESSMENT</div>

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Question Paper -External- End Sem Exam	Question Answer	15	-	External

<div align="center">ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)</div>

<div align="center">**NIL**</div>

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code		Course Code		CO Code	LO Code	Format No. 4
		C	0	4	4 0	2	3	1

COURSE NAME	Computer Network
CO-3 Description	To understand OSI model, tcp/ip protocol suite and types of wireless network.
LO-1 Description	Explain OSI Reference Model Concept.

SCHEME OF STUDY

SNo	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Introduction OSI model – Layered Architecture , Peer-to- Peer Processes, Interfaces between Layer, Protocols, Organization of the Layers, Encapsulation. Layers of the OSI Reference Model (Functions of each Layer & Protocols used) – Physical Layer, Data-Link Layer, Network Layer, Transport Layer, Session Layer, Presentation Layer, Application Layer.	Lab practicals with traditional lecture method and handouts	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge.	06	02	handouts	NIL

SCHEME OF ASSESSMENT

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Question Paper -External- End Sem Exam	Question Answer	15	-	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
		C	0	4	4	0	2	3	2	

COURSE NAME	Computer Network
CO-3 Description	To understand OSI model, tcp/ip protocol suite and types of wireless network.
LO-2 Description	To learn tcp/ip protocol suite.

<div align="center">SCHEME OF STUDY</div>

SNo	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Layers in the TCP/IP Protocol Suite, Comparison between OSI and TCP/IP Protocol Suite , Addressing- physical address, logical address and port address	Traditional lecture method and handouts	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge.	06	02	handouts	NIL

<div align="center">SCHEME OF ASSESSMENT</div>

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Question Paper–Internal Assignment- Progressive	Multiple choice questions/question paper	10	-	Internal

<div align="center">ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)</div>

<div align="center">NIL</div>

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code		Course Code		CO Code	LO Code	Format No. 4
		C	0	4	4	0	2	3	3	

COURSE NAME	Computer Network
CO-3 Description	To understand OSI model, tcp/ip protocol suite and types of wireless network.
LO-3 Description	To study of IP addressing and internet protocol versions(IPV4 and IPV6)

SCHEME OF STUDY

SNo	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	IP Address classes, classless IP addressing, Subnetting, supernetting, Masking. : Host-to-Network-SLIP and PPP, Internet Layer-ARP,RARP and IP: Introduction, IPv4, IPv6 (HeaderFormat), Difference between IPv4 & IPv6.	Traditional lecture method and handouts, presentation	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge.	04	08	Handouts/ Lab manual	NIL

SCHEME OF ASSESSMENT

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Internal marks lab	Multiple choice questions/quiz	10	-	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
		C	0	4	4	0	2	4	1	

COURSE NAME	Computer Network
CO-4 Description	To understand wireless Network, Management and Routing.
LO-1 Description	To learn different architecture in wireless network.

SCHEME OF STUDY

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Bluetooth Architecture, Wi-Fi, Wi- Max. Cellular (Mobile) Telephone - Band in Cellular Telephony, Calls Using Mobile Phones, Transmitting receiving / Handoff operations.	Lab practicals with traditional lecture method and handouts	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge	09	00	Handouts /Lab manual	NIL

SCHEME OF ASSESSMENT

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Internal Assignment term	Quiz /test	10	-	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
		C	0	4	4	0	2	4	2	

COURSE NAME	Computer Network
CO-4 Description	To understand wireless Network, Management and Routing.
LO-2 Description	Explain concept of network management.

SCHEME OF STUDY

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Simple network management protocol (SNMP), SNMP component, SNMP messages, SNMP Version, Network monitoring tools and software.	Lab practicals with traditional lecture method and handouts	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge	09	00	handouts	NIL

SCHEME OF ASSESSMENT

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Internal Lab Marks	Lab file /test /quiz	10	-	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
		C	0	4	4	0	2	4	3

COURSE NAME	Computer Network
CO-4 Description	To understand wireless Network, Management and Routing.
LO-3 Description	Describe routing algorithm for computer network.

SCHEME OF STUDY

SNo	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	Routing, Routing Metrics, Types of Routing, Link-state and distance vector routing, difference between RIP and OSPF.	traditional lecture method and handouts	Teacher will explain the contents and provide handout to students. Teacher will conduct quiz to make students practice their knowledge	10	00	handouts	NIL

SCHEME OF ASSESSMENT

SNo	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Question Paper -External- End Sem Exam	Question answer.	10	-	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

NIL

Experiment list

1 To observe Components of Network in your Computer Network Lab. (To know your Network Lab.)

2 To understand network features.

3 To connect and understand different Transmission Media and Network Control devices.

4 To Prepare a Straight Cable and Network Cross over Cable and test by Line Tester.

5 To install a network interface card.

6 To Connect Computers in Star Topology using Wired Media and any Network control Device.

7 To connect two hubs/switch by creating crossover connection.

8 To Configure Peer-to-Peer Network.

9 To Share Printer and Folder in Network.

10 To Install TCP/IP Protocols (Version 4 and version 6) and configure advanced features of TCP/IP Protocols.

11To Run Basic TCP/IP Utilities and Network Commands with all options.(Ping, Ping ::1, ipconfig, Tracert, Netstat, Wireshark, ARP, NBTSTAT.EXE), capture TCP, UDP, IP, ARP, ICMP, Telnet, FTP packets using Wire shark packet sniffer software.

13 To understand Subnet Masking and create two subnets.

14 To visit server room and prepare report on.

1. Proxy Server

2. Server Configuration

3. Router Configuration

4. Firewall Configuration

5. Network setup details (Topology, Back up, IP range, Network software, UPS)