M4.3-R4: INTRODUCTION TO ICT RESOURCES

Objective of the Course

This course has been designed to provide an introduction to Computer Hardware and Networking troubleshooting & maintenance. The student will be able to troubleshoot problems of PC and replace the defected parts of the computer. Students will understand the basic networking concepts and they will be able to establish and manage small networks.

At the end of the course students will be able to:

- Assemble and disassemble a PC
- Effectively use miscellaneous utilities such as: Compression, CD writing, Antivirus etc.
- Establish and configure a small LAN
- Perform simple network administration operation

Outline of Course

S. No.	Topic	Minimum number of hours
1.	PC Assembly and Operation	15
2.	Miscellaneous Utilities	15
3.	Networking Concepts	15
4.	Network Administration	15

Lectures	**=**	**60**
Practical/Tutorials	**=**	**60**
Total	**=**	**120**

Detailed Syllabus

1. PC Assembly and Operation **15 Hrs.**

Assembly and Disassembly of PC and its various Parts, Startup Process (Booting), BIOS Setup, CMOS Setup and meaning of its various setting, Installation of Windows XP operating System, Installation of Other Software Packages such as Ms Office etc.

Operation of Printer, Installation of printer driver, Backup and Restore Operations

Troubleshooting PC Problems

2. Utilities **15 Hrs.**

Compression Utilities: WinZip, PKZIP, Concept of compression, Defragmenting Hard, disk using defrag, Scan Disk for checking disk space, lost files and recovery, Formatting Hard disk, Floppy Disk, Setting System Date and Time, Antivirus Package

CD Writing Sofware – Nero etc.

3. Networking Concepts **15 Hrs.**

What is Networking, Local Area Networking (LANs), Metropolitan Area Network , MAN), Wide Area Network (WAN), Networking Topologies, Transmission media & method of communication, Cabling: straight through and cross over, Study of components like switches, bridges, routers, Wifi router etc., communication Protocols, TCP/IP, IP addressing, MAC address, Subnetting

4. Network Administration **15 Hrs.**

Installing and configuring the network using Windows NT based System, Administration of Windows NT based network, Creation of user and groups, File Sharing, Printer Sharing

RECOMMENDED BOOKS

MAIN READING

1. Scott and Mueller, “Upgrading and Repairing PCs”, Techmedia, New Delhi
2. Troubleshooting, Maintenance and Repairing PCs, Fifth Edition, by Stephen J. Bigelow, Tata McGraw-Hill Publishing Company Limited, New Delhi.
3. PC Upgrade and Maintenance Guide, 15th Edition, by Marks Minasi, BPB Publications
4. Basic of Networking. ”NIIT “, Prentice, Hall of India Private Limited.
5. Networking Protocols and Standards. ”NIIT “, Prentice, Hall of India Private Limited.
6. William Stallings, “Data and Computer Communication”, Prentice, Hall of India Private Limited.

M4.3-R4 INTRODUCTION TO ICT RESOURCES

Model Question Paper

NOTE:

1. There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.

2. **PART ONE** is to be answered in the **TEAR-OFF ANSWER SHEET** only, attached to the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book.

3. Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the answer sheet for **PART ONE** is returned. However, candidates, who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE**.

TOTAL TIME: **3 HOURS** **TOTAL MARKS: 100**
(PART ONE - 40; PART TWO - 60)

PART ONE
(Answer ALL Questions; each question carries ONE mark)

1 Each question below gives a multiple choices of answers. Choose the most appropriate one.

1.1 LED emits light under
- a) Reverse bias condition
- b) Forward bias condition
- c) Both (a) & (b)
- d) None of these

1.2 SMPS means
- a) System management power supply
- b) Synchronous mode power supply
- c) Switched mode power supply
- d) Sequential mode power supply

1.3 Which topology requires a central controller or hub?
- a) Mesh
- b) Star
- c) Bus
- d) Ring

1.4 The Internet model consists of ---------layers.
- a) Three
- b) Five
- c) Seven
- d) Eight

1.5 Your Windows 2000 Computer won't boot. Which tools can you use to attempt to recover from the system failure ?

a) Backup
b) Recovery Console
c) ERD
d) All of the above

1.6 You have a class C 192.168.10.0/28 Network. How many usable subnets and Hosts do you have?

a) 16 subnet, 16 Hosts
b) 14 subnet, 14 Hosts
c) 30 subnet, 6 Hosts
d) 62 subnet, 2 Hosts

1.7 For testing the network we use
a) domain
b) ping
c) ns
d) locate

1.8 BIOS is Known as_____
a) Basic Input Output Software
b) Basic Input Output System
c) Basic Input Operating System
d) None of these.

1.9 An ISP provides Internet connectivity via dial up with
a) MODEM
b) HUB
c) NETWORK CARD
d) None of the above

1.10 Which of the following can not be shared on the network?
a) CD-ROM
b) PRINTER
c) HARD DISK
d) PROCESSOR

2 Each statement below is either TRUE or FALSE. Identify and mark them accordingly in the answer book.

2.1 Incremental backup takes less time as compared to differential backup.
2.2 CIPHER is a window2k file/folder compression utility tools.
2.3 A display option allows you to change the resolution of monitor screen .
2.5 CD-R can be written into again and again.
2.6 BIOS stand for Basic Input Output System.
2.7 Hard disk is used as secondary storage device.
2.8 If your computer has virus, just format it.
2.9 The performance of Dot Matrix Printer is better than laser Printer.

2.10 ROM can be programmed again and again.

3 Match words and phrases in column X with the nearest in meaning in column Y.

	X		Y
3.1	RAM	a.	Disk Mirroring.
3.2	RARP	b.	File Encryption utility.
3.3	WinZip	c.	Grouping of one or more domain having single
3.4	Tree	d.	A type of printer
3.5	Nero	e.	File system.
3.6	Cabling Method	f.	To Resolve Hostname into logical address
3.7	FTP	g.	CD writing Software
3.8	InkJet	h.	Random Access Memory
3.9	CIPHER	i.	Network topology
3.10	NTFS	j.	To resolve MAC add (Physical address) into IP add .
		k.	To recover from system failure.
		l.	Compression Utility
		m.	A protocol for file transfer
		n.	Cross Over

4 Fill in the blanks in 4.1 to 4.10 below, by choosing appropriate words and phrases given in the list below:

(a) UTP	(b) 1024	(c) ATTRIB	(d) Coaxial	(e) echo
(f) Network	(g) Dos	(h) Virus	(i) 1000	(j) hard
(k) Memory	(l)Slower	(m) NTFS	(n) faster	(o) Ping

4.1 Cache memory is_____in speed than secondary storage device.
4.2 File system used by WINDOWS NT for security purpose is _____.
4.3 Maximum cable length for _____ from hub to computer is 100 meters or 328 feet.
4.4 _____is a batch file command
4.5 1 KB equals to _____ bytes.
4.6 We can boot computer from _____ disk, CD & floppy.
4.7 NTFS is termed as _____.
4.8 IP is a _____ Layer Protocol.
4.9 _____ Command is used to verify the connection between two computers.
4.10 _____ acts like an interface between user & computer.

PART TWO
(Answer ANY FOUR questions)

5.

a) Write down the step by step procedure for installation of Windows Xp operating system.
b) What do you understand by printer pools? Explain the process of configuring printers folders to mange print job?

(7.5+7.5)

6.

a) List out general Problems during system startup and it's troubleshooting techniques.

b) Give the constructional details of Dot Matrix Printer with the help of appropriate diagram.

(7.5+7.5)

7.

a) Why Backup is required ? List different types of Backup? How will you restore a user data stored on a magnetic tape?
b) What do you mean by SMPS ? Explain the working of SMPS with appropriate diagram.

(7.5+7.5)

8.

a) What are the different compression techniques? Discuss with example.
b) Explain about unshielded twisted pair (UTP) cable. How to prepare cross over cable with detail colour code?

(7.5+7.5)

9. Write short notes on following:

a) Switch or Router
b) TCP/IP
c) Laser Printer

(5+5+5)

Assignment 1.

Study of CMOS (BIOS) Configuration

Assignment 2.

New Installation of Windows XP

Assignment 3.

Using Windows XP.

Assignment 4.

Study of Control panel.

Assignment 5.

Installation of various cards (VGA, Sound, NIC, etc.) Drivers.

Assignment 6.

Study of MSDOS.SYS File and other windows system files.

Assignment 7.

Introduction to windows registry.

Assignment 8.

Backup and Restore procedures of Windows XP.

Assignment 9.

Study and identification of various parts of PC.

Assignment 10.

Assembly and disassembly of PC.

Assignment 11.

Troubleshooting of keyboard, Mouse, CDROM, Display, FDD,and Printer.

Assignment 12.

To use the compression utilities.

Assignment 13.

To install and configure antivirus package.

Assignment 14.

To use CD writing software for writing data and copy disc.

Assignment 15.

To create a Crossover cable using standard color-coding (RJ-45, UTP, Crimping tools)

Assignment 16.

To create a straight cable using standard color-coding. (RJ-45, UTP, Crimping tools)

Assignment 17.

To identify various media (STP, UTP, Co-axial, Fibre optics etc.) and its connectors.

Assignment 18.

To install NIC, installation of TCP/IP, assigning of IP address to the system..

Assignment 19.

To create a simple LAN with two PCs using a single crossover cable to connect the workstations.

Assignment 20.

To create a simple LAN with two PCs using an Ethernet hub and two straight thru cables to connect the workstations.

Assignment 21.

To setup a LAN with a number of PCs using 8/16 port HUB.

Assignment 22.

To set up a WLAN (wi-fi) router.

Assignment 23.

To use the ICMP Ping command (with switches) to verify the TCP/IP connection between the two workstations..

Assignment 24.

To study TCP/IP command utility.

Assignment 25.

To share and access a file/folders over a network.

Assignment 26.

Installation of windows 2000 server/professional..

Assignment 27.

Creation and administration of user and group accounts.