



**ADVANCED DIPLOMA IN
COMPUTER HARDWARE AND
NETWORK MANAGEMENT
(ADCHNM)**



curriculum

**Ministry of Micro, Small and Medium
Enterprises, New Delhi
(MSME-Technology Centre)**

COURSE/MODULE TEMPLATE

COURSE NAME: ADVANCED DIPLOMA IN COMPUTER HARDWARE & NETWORK MANAGEMENT.

COURSE CODE: MSME/ADCHNM/00

COURSE OUTCOMES: After completion of course Student should be able to:

1. Understand the work of SMPS and procedure to troubleshoot.
2. Understand the function of hardware peripherals of computer and procedure to troubleshoot the common issues.
3. Install various type of software and fault tolerant solutions.
4. Setup different network and share the resources.
5. Configure network and their various services by using of latest version of server.
6. Manage Linux OS and packages for server configuration.
7. Test the electronic components by using measuring devices and construct various circuits.
8. Understand the use of Microsoft Word, Excel and PowerPoint.
9. Work in a team, understand and practice soft skills, technical English to communicate with required clarity

THEORY HOURS: 255

PRACTICAL HOURS: 525

THEORY MARKS: 900

PRACTICAL MARKS: 900

Unit No.	Unit Name	Unit level outcomes	Contents (chapters/topics)	TH hours	Marks
UNIT-I	Power Supply	Understand the work of SMPS and procedure to troubleshoot.	1. Types of power supply 2. Block diagram of SMPS 3. Input section of SMPS 4. Switching Section of SMPS 5. Output Section of SMPS 6. Driver Section of SMPS 7. Oscillator Section Of SMPS 8. Standby Section of SMPS 9. Fault-finding & Troubleshoot 10. Voltage Testing	27	100
UNIT-II	PC Architecture	Understand the function of hardware peripherals of computer and procedure to troubleshoot the common issue	1. Micro Processor 2. Mother Board 3. RAM 4. HDD 5. CDD 6. Key Board and Mouse 7. Monitor 8. Printer	54	100
UNIT-III	Software Installation, Up	Install various type of software and fault tolerance solution.	1. Partitioning & Formatting 2. OS Loading	12	100

	gradation & Maintenance		3. Driver Loading 4. Application Software Loading		
UNIT-IV	Network Essential, setup & management	Setup different network and sharing the resources	1. Transmission Media 2. IP Addressing 3. Peer to Peer Networking	28	100
UNIT-V	Network management & server configuration	Configure network and their various services by using of 2012 server	1. Implement Client Server of 2012 Server OS 2. Create user in AD-DS and manage login Policies 3. Configure DHCP Server 4. Configure N-Computing Technology	36	100
UNIT-VI	LINUX management & network configuration	Manage Linux OS and packages for server configuration	1. Concept of Linux file permission 2. Install Packages and up gradation 3. Configure various Linux server 4. Troubleshooting process of Linux	36	100
UNIT-VII	Basic Electronics	Test the electronic components by using measuring devices and construct various circuits.	1. Multimeter & Tools 2. Resistor 3. Capacitor 4. Inductor 5. Diode 6. Transistor 7. IC	24	100
UNIT-VIII	Office Package	Understand the use of Microsoft Word, Excel and PowerPoint.	1. Word 2. Excel 3. Power Point	15	100
UNIT-IX	Communication Skill	Work in a team, understand and practice soft skills, technical English to communicate with required Clarity	1. Communicative English 2. Industrial Management 3. Project Work / In plant Training.	15	100

COURSE WISE DETAILS CONTENTS

Program Name : ADVANCED DIPLOMA IN COMPUTER HARDWARE & NETWORK MANAGEMENT.

**Course Title : Power Supply
: PC Architecture
: Software Installation, Up gradation & Maintenance
: Network Essential, setup & management
: Network management & server configuration
: LINUX management & network configuration
: Basic Electronics
: Office Package
: Communication Skill**

Course Code : MSME/ADCHNM/00

Rationale:

Hardware engineer would plan for pre requirements to setup the system unit to assemble the computer and laptop on standard basic and install, configure, manage and maintain an environment with client and server Operating Systems in the industry. Convergent problem and solutions to manage the services and troubleshooting. Repair and replace the peripheral equipment on standard basic of system. Plan and organize assigned work and resolve issues during execution of various software tools. Demonstrate possible solutions and agree tasks within the team of IT sector industry.

Network engineer would plan and construct data communication networks, such as local area network (LAN) and wide area network (WAN). Install, service and repair the computer data and communication systems used by companies and organizations. Installing and Configuring new software and hardware. Setting up user accounts, permissions and password to allow access to the network and to configuring on an existing network and newly setup network and also troubleshooting on network infrastructure.

Outcomes:

- Understand the work of SMPS and procedure to troubleshoot.
- Understand the function of hardware peripherals of computer and procedure to troubleshoot the common issues.
- Install various type of software and fault tolerant solutions.
- Setup different network and share the resources.
- Configure network and their various services by using of latest version of server.
- Manage Linux OS and packages for server configuration

Theory:

Topic and Contents	Hours	Marks
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Topic 1: Power Supply	27	100
MAJOR CHAPTERS		
1. Types of power supply	(10 Marks)	
2. Block diagram of SMPS	(10 Marks)	
3. Input section of SMPS	(10 Marks)	
4. Switching Section of SMPS	(10 Marks)	
5. Output Section of SMPS	(10 Marks)	
6. Driver Section of SMPS	(10 Marks)	
7. Oscillator Section Of SMPS	(10 Marks)	
8. Standby Section of SMPS	(10 Marks)	
9. Fault-finding & Troubleshooting	(10 Marks)	
10. Voltage Testing	(10 Marks)	
Contents:		
➤ 1.1 Types of power supply:	(10 Marks)	
• Introduction to power supply,		
• Types of power supply ,		
• Use of power supply.		
➤ 1.2 Block diagram of SMPS:	(10 Marks)	
• Introduction to different section of SMPS,		
• Function of different section of SMPS.		
• Component used in different section of SMPS.		
➤ 1.3 Input section of SMPS:	(10 Marks)	
• Introduction to Input section,		
• Circuit Diagram of Input section.		
• Function of Input section.		
• Tracing of Input section.		
➤ 1.4 Switching Section of SMPS	(10 Marks)	
• Introduction to Switching Section,		
• Circuit Diagram of Switching Section.		
• Function of Switching Section.		
• Tracing of Switching Section.		
➤ 1.5 Output Section of SMPS:	(10 Marks)	
• Introduction to Output Section,		
• Circuit Diagram of Output Section		
• Function of Output Section.		
• Tracing of Output Section.		
➤ 1.6 Driver Section of SMPS:	(10 Marks)	

<ul style="list-style-type: none"> • Introduction to Driver Section, • Circuit Diagram of Driver Section • Function of Driver Section. • Tracing of Driver Section. 		
<ul style="list-style-type: none"> ➤ 1.7 Oscillator Section Of SMPS: (10 Marks) • Introduction to Oscillator Section, • Circuit Diagram of Oscillator Section • Function of Oscillator Section. • Tracing of Oscillator Section. 		
<ul style="list-style-type: none"> ➤ 1.8 Standby Section of SMPS: (10 Marks) • Introduction to Standby Section, • Circuit Diagram of Standby Section • Function of Standby Section. • Tracing of Standby Section. 		
<ul style="list-style-type: none"> ➤ 1.9 Fault-finding & Troubleshooting (10 Marks) • Testing of different section. • Detection of fault. • Troubleshoot the fault. 		
<ul style="list-style-type: none"> ➤ 1.10 Voltage Testing: (10 Marks) • Voltage testing in the output connector of SMPS 		
Topic 2: PC Architecture	54	100
MAJOR CHAPTERS		
1. Micro Processor (10 Marks)		
2. Mother Board (20 Marks)		
3. RAM (10 Marks)		
4. HDD (20 Marks)		
5. CDD (10 Marks)		
6. Key Board and Mouse (10 Marks)		
7. Monitor (10 Marks)		
8. Printer (10 Marks)		
Contents:		
<ul style="list-style-type: none"> ➤ 2.1 Micro Processor: (10 Marks) • Types of microprocessor and their technology. 		
<ul style="list-style-type: none"> ➤ 2.2 Mother Board: (20 Marks) • Different types of motherboard • Different types of add on cards. • Different types of port in motherboard • Different types of slot in motherboard 		

<ul style="list-style-type: none"> ➤ 2.3 RAM (10 Marks) <ul style="list-style-type: none"> • Types of memory of computer, ➤ 2.4 HDD (20 Marks) <ul style="list-style-type: none"> • The type of HDD. • Size of HDD • The physical and logical technology used to read and write the data in HDD. ➤ 2.5 CDD (10 Marks) <ul style="list-style-type: none"> • The type of CDD. • The type of DVD • The physical and logical technology used to read and write the data in Optical Drive. ➤ 2.6 Key Board and Mouse (10 Marks) <ul style="list-style-type: none"> • Types Key board • Types Of Mouse • Problem in Key board and mouse. ➤ 2.7 Monitor (10 Marks) <ul style="list-style-type: none"> • Different types of Monitor. • CRT • LCD • LED ➤ 2.8 Printer (10 Marks) <ul style="list-style-type: none"> • Types of printer • Printing technology of printer 		
<p>Topic 3: Software Installation, Up gradation & Maintenance.</p> <p>MAJOR CHAPTERS</p> <ul style="list-style-type: none"> ➤ 1. Partitioning & Formatting (30 Marks) ➤ 2. OS Loading (30 Marks) ➤ 3. Driver Loading (20 Marks) ➤ 4. Application Software Loading (20 Marks) <p>Contents:</p> <ul style="list-style-type: none"> ➤ 3.1 Partitioning & Formatting (30 Marks) <ul style="list-style-type: none"> • Introduction to software and types. • Partition concept of hard disk and their limitation. ➤ 3.2 OS Loading (30 Marks) <ul style="list-style-type: none"> • Support and compatible with various operating systems • Standard basic installation. 	12	100

<ul style="list-style-type: none"> ➤ 3.3 Driver Loading (20 Marks) <ul style="list-style-type: none"> • Support the hardware base application and their uses. ➤ 3.4 Application Software Loading (20 Marks) <ul style="list-style-type: none"> • Introduction to Application Software • Installation process of Software. 		
<p>Topic 4: Network Essential, setup & management.</p> <p>MAJOR CHAPTERS</p> <ul style="list-style-type: none"> ➤ 1. Transmission Media (30 Marks) ➤ 2. IP Addressing (30 Marks) ➤ 3. Peer to Peer Networking) (40 Marks) <p>Contents:</p> <ul style="list-style-type: none"> ➤ 4.1 Transmission Media (30 Marks) <ul style="list-style-type: none"> • Introduction to Computer Network • Network topology and transmission media. ➤ 4.2 IP Addressing (30 Marks) <ul style="list-style-type: none"> • Understand the OSI Model and functions • Protocol overview and Ranges of IP address ➤ 4.3 Peer to Peer Networking) (40 Marks) <ul style="list-style-type: none"> • Function of end user device (PC, MOBILE). • Intermediate devices (REPEATER, HUB, SWITCH, ROUTER). • Introduction to Peer to Peer networking. 	28	100
<p>Topic 5: Network management & server configuration.</p> <p>MAJOR CHAPTERS</p> <ul style="list-style-type: none"> ➤ 1. Implement Client Server of 2012 Server OS (20 Marks) ➤ 2. Create user in AD-DS and manage login Policies (20 Marks) ➤ 3. Configure DHCP Server (30 Marks) ➤ 4. Configure N-Computing Technology (30 Marks) <p>Contents:</p> <ul style="list-style-type: none"> ➤ 5.1 Implement Client Server of 2012 Server OS (20 Marks) <ul style="list-style-type: none"> • Concept of Client Server Architecture • Workgroup and Domain Module ➤ 5.2 Create user in AD-DS and manage login Policies (20 Marks) <ul style="list-style-type: none"> • Discuss Client Server security. • Group Policy Management(GPM) ➤ 5.3 Configure DHCP Server (30 Marks) <ul style="list-style-type: none"> • Introduction various server configuration and their services. • DHCP Configuration. ➤ 5.4 Configure N-Computing Technology (30 Marks) <ul style="list-style-type: none"> • Introduce wireless devices. • Their implementation with zero configure process. 	36	100

<p>Topic 6: LINUX management & network configuration.</p> <p>MAJOR CHAPTERS</p> <ul style="list-style-type: none"> ➤ 1. Concept of Linux file permission (25 Marks) ➤ 2. Install Packages and up gradation (25 Marks) ➤ 3. Configure various Linux server (25 Marks) ➤ 4. Troubleshooting process of Linux (25 Marks) <p>Contents:</p> <ul style="list-style-type: none"> ➤ 6.1 Concept of Linux file permission (25 Marks) <ul style="list-style-type: none"> • Introduce Linux Operating System and installation • Overview about Linux OSS and Linux file systems ➤ 6.2 Install Packages and up gradation (25 Marks) <ul style="list-style-type: none"> • Concept of Linux file permission • Install Packages and up gradation ➤ 6.3 Configure various Linux server (25 Marks) <ul style="list-style-type: none"> • Configure DNS and DHCP server. • Configure Apache web server. • Configure FTP and SAMBA server. ➤ 6.4 Troubleshooting process of Linux (25 Marks) <ul style="list-style-type: none"> • Change boot process of Linux OS. • Change password of root in rescue mode. • Install and upgrade packages as per service of server. 	36	100
<p>Topic 7: Basic Electronics.</p> <p>MAJOR CHAPTERS</p> <ul style="list-style-type: none"> ➤ 1. Multimeter & Tools (15 Marks) ➤ 2. Resistor (15 Marks) ➤ 3. Capacitor (15 Marks) ➤ 4. Inductor (15 Marks) ➤ 5. Diode (15 Marks) ➤ 6. Transistor (15 Marks) ➤ 7. IC (10 Marks) <p>Contents:</p> <ul style="list-style-type: none"> ➤ 7.1 Multi meter & Tools (15 Marks) <ul style="list-style-type: none"> • Identification of Different terminal • Testing procedure of V, I, R. • Identification of tools and its function. ➤ 7.2 Resistor (15 Marks) <ul style="list-style-type: none"> • Identification of Resistor. • Calculation of value of Resistor. • Connection of Resistor. 	24	100

<ul style="list-style-type: none"> • Testing of Resistor. ➤ 7.3 Capacitor (15 Marks) • Identification of Capacitor. • Calculation of value of Capacitor. • Connection of Capacitor. • Testing of Capacitor. ➤ 7.4 Inductor (15 Marks) • Testing of inductor. • Function of Inductor. ➤ 7.5 Diode (15 Marks) • Characteristic of diode • Connection of Diode. • Testing of Diode • Use of Diode. ➤ 7.6 Transistor (15 Marks) • Identification of transistor • Testing of Transistor. • Function of Transistor ➤ 7.7 IC (10 Marks) • Types of IC. • Working of IC 		
<p>Topic 8: Office Package.</p> <ul style="list-style-type: none"> ➤ 8.1.Word (40 Marks) ➤ 2.Excel (30 Marks) ➤ 3.Power Point (30 Marks) <p>Contents:</p> <ul style="list-style-type: none"> 8.1Word (40 Marks) <ul style="list-style-type: none"> • Basic of word processing tools • various menu • Process document format their style and settings. ➤ 2.Excel (30 Marks) <ul style="list-style-type: none"> • Spreadsheet database • Program skill to manage the report, • Chart with various functions to utilize on related field. ➤ 3.Power Point (30 Marks) <ul style="list-style-type: none"> • Power Point program to setup the slide • Power Point program to setup the design, • Power Point program to setup the layout and themes on organization way. 	15	100

Topic 9: Communication Skill.	15	100
<p>MAJOR CHAPTERS:</p> <ul style="list-style-type: none"> ➤ 1. Introduction to Basics of communication (25 Marks) ➤ 2. English Language Lab (25 Marks) ➤ 3. Personality Development (25 Marks) ➤ 4.1 Group Discussion (25 Marks) <p>Contents:</p> <ul style="list-style-type: none"> ➤ 9.1 Introduction to Basics of communication (25 Marks) <ul style="list-style-type: none"> • Forms, types, purpose, theory, examples from day to day life. • Introduction to soft skills. • Introduction to nonverbal communication – body language ➤ 9.2 English Language Lab (25 Marks) <ul style="list-style-type: none"> • The Sounds of English – Vowels & Consonant. • Word Accent – Accent, Tone, Pitch • Voice Modulation. ➤ 9.3 Personality Development (25 Marks) <ul style="list-style-type: none"> • Elocution, debates, extempore, Newspaper reading. • Positive gestures, handshakes, eye contact, smiles, styles of walking, hand movements. • Activities on Listening Skill • Role Plays and Situation Handling ➤ 9.4 Group Discussion (25 Marks) <ul style="list-style-type: none"> • One- to-one interaction & group exercises. • Role plays, situation handling techniques for above skills. 		
Total	255	800

Intellectual Skills:

1. Prepare list for assemble the computer.
2. Prepare list for setup LAN.
3. Design peer to peer networking.
4. Design Client server networking.
5. Select suitable software and drivers.

Motor Skills:

1. Repair the computer peripherals.
2. Repair the computer and make it functional.
3. Setup LAN.

List of Practical:

1. Power supply Repairing.
2. Assembling of PC.
3. Partitioning and formatting of HDD.
4. Operating system setup.
5. Driver and application software loading.
6. Peer to Peer networking.
7. Client Server Networking
8. Server Management.

9. Learning Resources:**Books:**

Sr. No.	Author	Title	Publisher
1	Scott Mueller	1.Upgrading and Repairing PCs	Tom's Hardware
2	Vikas Gupta	Comdex Hardware and Networking Course Kit	Dreamtech
3	Stephen Bigelow	Troubleshooting, Maintaining and Repairing PCs (Hardware)	Bigelow's
4	Behrouz A Forouzan	Data Communications and Networking	The McGraw-Hill
