

## Diploma in Computer Hardware Maintenance (DCHM)

Course Module	Module Details
Basic Networking	<ul style="list-style-type: none"> <li>• Introduction to Computer Networks – Advantages of Networking, Peer-to-Peer and Client/Server Network.</li> <li>• Network Topologies – Star, Ring, Bus, Tree, Mesh, Hybrid.</li> <li>• Type of Networks – Local Area Networks (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN) and Internet, Ethernet, Wi-Fi, Bluetooth, Mobile Networking, Wire and wireless Networking.</li> <li>• Difference between Intranet and Internet. Communication Media and Connectors</li> <li>• Unshielded twisted-pair (UTP), shielded twisted-pair (STP), Fiber Optic and coaxial cable: RJ-45, RJ-11, BNC.</li> <li>• Understanding color codes of CAT5 cable. 568A and 568B convention. Introduction to Data Communication – Analog and Digital Signals, Simplex, Half- Duplex and Full-Duplex transmission mode.</li> </ul> <p><b>Components of the Computer Network, Crimping, Punching and Cabling</b></p> <ul style="list-style-type: none"> <li>• Familiarization with various Network devices, Connectors and Cables.</li> <li>• Understanding the Layout of network.</li> <li>• Crimping practice with straight and cross CAT 5 cables.</li> <li>• Punching practice in IO Box and patch panel. Crimping and making cables. Create cabling in a lab with HUB/Switch and IO Boxes and patch panel. Fitting Switch Rack.</li> </ul>
Setting up different Network	<p><b>Install and configure a Network</b></p> <ul style="list-style-type: none"> <li>• OSI Model - The functions of different layers in OSI model</li> <li>• Network Components – Modems, Firewall, Hubs, Bridges, Routers, Gateways, Repeaters, Transceivers, Switches, Access point, etc. – their functions, advantages and applications.</li> <li>• Installing and Configuring a Peer-to-Peer Network using Windows Software.</li> <li>• Making cables by crimping.</li> <li>• Connect computers using Bluetooth.</li> <li>• Connecting computers using Wi-Fi configuration.</li> <li>• Basic Programmable switch Configuration</li> </ul> <p><b>IP Addressing and TCP/IP</b></p> <ul style="list-style-type: none"> <li>• Protocols, TCP/IP, FTP, Telnet etc., Theory on Setting IP Address (IP4/IP6) and Subnet Mask, Classes of IP Addressing</li> <li>• IP addressing technique (IP4/IP6) and Sub-netting and Super-netting the network.</li> </ul> <p><b>Other Network Protocols</b></p> <ul style="list-style-type: none"> <li>• Simple Mail Transfer Protocol (SMTP), Telnet, File Transfer Protocol (FTP), Hyper Text Transfer Protocol (HTTP), Simple Network Management Protocol (SNMP).</li> <li>• Network Security Concept of Dynamic Host Control Protocol.</li> <li>• Working with SMTP, TELNET, FTP, HTTP, SNMP etc. Practice on configuring DHCP.</li> </ul>
Setting Up Internet	<p><b>Sharing Resource and Internet connection</b></p> <ul style="list-style-type: none"> <li>• Concept of Internet. Architecture of Internet. DNS Server. Internet Access Techniques, ISPs and examples (Broadband/Dialup/Wi-fi).</li> <li>• Concept of Social Networking Sites, Video Calling &amp; Conferencing. Concept of VIRUS and its Protection using Anti Virus, UTM and Firewall.</li> <li>• Sharing Resource and Advance Sharing Setting.</li> <li>• Installing Proxy Server.</li> <li>• Exposure and using Internet. Setting e-mail accounts. Conferencing.</li> <li>• Installing and Configuring Internet Connection on a PC using Broadband or Dongle</li> </ul>

<p>Server Installation and Basic Configuration</p>	<ul style="list-style-type: none"> <li>• Server concepts, Installation steps, configuration of server.</li> <li>• Concept of Active Directory and DNS. Setting up of DHCP, Routing and remote access.</li> <li>• Install and configure Windows Server</li> <li>• Configure services like Active Directory, DNS and DHCP.</li> <li>• Configuration of broadband modem and sharing internet connection.</li> <li>• Linux Installation.</li> </ul>
<p>Network Troubleshooting</p>	<p><b>Network Protection and troubleshooting</b></p> <ul style="list-style-type: none"> <li>• Collaborating using wired and wireless networks, Protecting a Network, Network performance study and enhancement.</li> <li>• Setting up basic protection using public keys and MAC address filters. Integrate wired with wireless network. Power over Ethernet (PoE). Troubleshooting wired and wireless</li> </ul>