Name of Unit of Qualification: **Annexure -III**

Detailed Curriculum

Analyzing Computer Fundamental & Word Processing

Duration: 39 Hrs

Topics : Fundamentals of Computer and Word Processing

Performance Criteria (OUTCOME) No.	Contents	Hrs.
1. **Preparation of platform for Computer Awareness**	**Introduction to Computers** Basic building blocks of a computer system the CPU, the Arithmetic & Logical Unit. The binary numbers as a language which computer understands. Interprets and processes. The Input & Output devices as means of communication with a computer system.	3 Hrs
	Concept of hardware & software Two main components of a computer system. Definition of data and information. Importance of information flow & its impact on growth & productivity.	3 Hrs

	Computer as an Electronic Machine The need for study of Electronics & Electronic components for understanding the working of a Computer & Peripherals such as Keyboard. Mouse etc. from hardware point of view.	3 Hrs
2. **Acquiring Skills of Operating System**	**Introduction to Windows:** What is an operating system and basics of Windows, The user interface, Using mouse and moving icons on the screen, The My Computer Icon, The Recycle Bin, Status Bar, Start and menu & Menu-selection, Running an Application, Windows Explorer viewing of file, folders and directories, Creating and Renaming of files and folders, Opening and closing of different Windows.	3 Hrs
	Windows Setting: Control Panels, Wall paper and screen savers, Setting the date and sound, Concept of menu using help **Advanced Windows:** Using right button of the mouse, Creating short cuts, Basic of Window setup	3 Hrs
	Windows Accessories : Notepad, Calculator, Paint Brush	3 Hrs
3. **Acquiring the skills of Document Preparation**	**Text creation and manipulation**: Paragraph and Tab setting, Text selection, Cut, Copy, and Paste, Font and size selection, Bold, Italic and Underline, Alignment of text: Centre, Left, right and Justify.	3 Hrs
	Formatting the Text: Changing font, size and color, Paragraph indenting, Bullets and numbering, Use of Tab and Tab setting, Changing case **Handling Multiple documents:** Opening and closing of multiple documents, Cut, Copy and Paste	3 Hrs
	Text creation and manipulation: Paragraph and Tab setting, Text selection, Cut, Copy, and Paste, Font and size selection, Bold, Italic and Underline, Alignment of text: Centre, Left, right and Justify	3 Hrs
	Formatting the Text: Changing font, size and color, Paragraph indenting, Bullets and numbering, Use of Tab and Tab setting, Changing case **Handling Multiple documents**: Opening and closing of multiple documents, Cut, Copy and Paste	3 Hrs

	Special Features: Header & Footer, Footnote, Comments, Page break, Date & time, Auto text, Autocorrect, Symbols, Picture & wordart, Spell Checker, Hyperlink	3 Hrs
	Table Manipulation: Concept of table: Row columns and cells, Draw Table, Changing cell width and height, Alignment of text in cell, Copying of cell, Delete/insertion of row and columns, Borders for table, Printing, Print Preview, Print a selected page	3 Hrs
	Mail Merge	3 Hrs

Name of Unit of Qualification:	Analyze the Advanced Information Regarding Electronic Circuit & Memory
Duration:	42 Hrs
Topics:	Peripherals of Computer Electronics & Circuits

Performance Criteria (OUTCOME) No.	Contents	Hrs.
1. **Acquiring fundamentals of Electronics components of Computer**	**Electronic Components: Active and Passive Components** **Passive components**: Resistor, Capacitor & inductor Resistor: **Resistor**: Standardization color codes. Power rating specification, properties of fixed and variable resistors. Specifications and properties of thermistors.	3 Hrs
	Capacitor: Introduction, color codes, type of capacitors.	3 Hrs
	Inductor: Introduction, magnetic materials, type of inductors, features and specification	3 Hrs
	Active components Introduction to Diodes, their characteristics and applications, Zener diodes and their characteristics and impendence, Introduction to Bipolar transistors and their applications, functions, specification, testing of Diodes and Transistors.	3 Hrs
	Introduction to operational amplifiers (OP AMPs) and simple circuits.	3 Hrs
2. **Acquiring the Information about Circuits**	**Digital and Integrated Circuits** Introduction to logic levels & gates, Latches, unidirectional & bi-directional buffers, tristate devices, Clock generators, Flip-flop, Registers, Counters, Multiplexers & Demutiplexers.	3 Hrs
	Digital and Integrated Circuits (contd..…) Introduction to various logic families and their characteristic, Bipolar Logic Family, Unipolar Logic Family – PMOS, NMOS, CMOS, Characteristics of Digital IC's	6 Hrs
	Comparison of Digital Logic Families. Latest trends in packaging.	6 Hrs
3. **Acquiring the knowledge about memory & tools**	**Semiconductor Memories:** Hierarchy of memories used in a computer, Classification of memories and trends in PC memory modules.	6 Hrs
	Tools and Aids for PC Maintenance Test and measuring equipment like Cathode Ray	6 Hrs

maintenance	Oscilloscope, Multi-meter. Study of ammeter, digital multi-meter and how they are used. Tools used in maintenance like vacuum cleaner, brush, forceps, screwdriver set, cutter, pilers, and stripper, cleaning solutions.	

Name of Unit of Qualification: Design and Development of Computer Architecture and Microprocessor

Duration: 39 Hrs

Topics: PC Architecture

Performance Criteria (OUTCOME) No.	Contents	Hrs.
1. **Acquiring skills on hardware components of Computer**	**The Computer Architecture** The mother Board, Hard Disk drives, Floppy disk drives, display systems, Input & Output devices and their role in the functioning of Computer System	3 Hrs
	Study of PC/AT motherboards: Block diagram architecture of motherboard. CMOS setup and their features, configuring extended, expanded memory, cache memory, shadow memory, EDO RAM etc.	3 Hrs
	Specifications of a latest Pentium –III based, motherboard (CUWE-RM)	3 Hrs
	Buses Study of Bus Standards: Brief study of various bus standards: ISA, EISA, VL, PCI, PCMCIA etc	3 Hrs
2. **Acquiring the Basic Information Regarding Monitor**	**Display Cards & Monitors** Description of different types of display cards Monitors: CRT construction and working, vertical stage, horizontal state, 9 pin input type-monitor, block diagram & description of color monitor.	3 Hrs
	Specifications & Troubleshooting guide for a latest color monitor Flat vision 38 cm model 38F1	3 Hrs
3. **Acquiring the Skills about PC drivers**	**Drive Systems** Various parts of FDD, types of floppies, geometry of floppy, various recording formats, interface signals, floppy drive alignment track 0, and adjustment, formatting of floppies.	3 Hrs
	Types of hard disk drives, IDE, EIDE, SCSI, Geometry of hard disk drive, Interface signal, tape drives, DVD, introduction to RMD, various concepts of hard disk drives, types of formatting, partitioning and handling of hard disk drive.	3 Hrs
	Zip drive functioning, CD drive and CD writer functioning, handling and repair.	3 Hrs
	Mouse and keyboard (wired and wireless): Types, basic functioning, interfacing and installation.	3 Hrs

Acquiring the Skills about Microprocessors & Pentium Processor	**Introduction To Microprocessors/Microcomputers** Introduction to digital computer, microcomputer organization, machine language, architecture of an 16-Bit generic microprocessor, simplified memory organization, DMA, interrupts, 8086/8088 architecture and instruction set, steps for program development for 8086/8088.	3 Hrs
	Features of Microprocessor: Introduction to 80286, 80386, 80486, numeric processor 80387, various version of 80386 and 80486 viz. 80386SX, 80386DX, 80486SX, 80486DX-2, 80486 DX-4, and their comparisons.	3 Hrs
	Pentium Class of Processors Pentium processor, Pentium Pro processor, Pentium MMX processor, Pentium – II, Celeron processor, Pentium – III processor, Pentium-IV Processor, Introduction to Server class processor.	3 Hrs

Name of Unit of qualification: Learning skills to Design, Install, Configure, Manage Troubleshoot a Computer Network

Duration: 210 hrs.

Topics: Computer Network

Performance Criteria (OUTCOME) No.	**Contents**	**Hrs.**
Acquiring skills for Ethernet and Internetworking	Ethernet Fundamentals, Cabling, Three-Layer Hierarchical Architecture Networking Basics, OSI Reference Model, TCP/Ip Protocol Model, Introduction to LAN,WPAN, MAN, WAN	10 Hrs.
Gaining IP Addressing Skillset	IP Addressing, IP Address Types, Subnetting and Classless Inter Domain Routing (CIDR) Concepts, Variable Length Subnet Masking (VLSM), Practical design problems in networks, IPV6 Concepts.	30 Hrs.
Obtaining skills in basic Configuration of routers and Switches	Router architecture, Switch Architecture, Working of Router and Switch, IOS Command line Introduction of Routers and Switches, Basic Commands, Viewing, Saving, Erasing Switch and Router Configurations, Backing and Restoring Configurations in both Switches and Routers, Password recovery of both Switch and Router.	15 Hrs.
Acquiring Advance Router Configuration Skills	Configuring DHCP Services, Configuring Network Time Protocol (NTP), understanding Address Resolution Protocol (ARP), Using Cisco Discovery Protocol (CDP), Telnet, Hostname Resolution, IPV6 implementation, Network Connectivity and Troubleshooting.	15 Hrs.
Learning Routing Fundamental Skills	Basic Routing Process, Configuring Static Routing, Dynamic Routing.	10 Hrs.
Gaining skills in Advance Concepts of Routing	Routing information Protocol (RIP),RIP v1,RIP v2,RIPng, Enhanced Interior Gateway Routing Protocol (EIGRP) EIGRP v6 , Single Area Open Shortest Path First (OSPF), Multi Area Open Shortest Path First (OSPF),OSPF v3, Detailed concepts of each of the protocols with their specific configuration and troubleshooting	30Hrs.
Acquiring Skill for Advanced Network Concepts	First Hop Redundancy, Protocol (FHRP), Hot standby Routing protocol(HSRP),Gateway Load Balancing protocol (GLBP), Virtual Router Redundancy Protocol (VRRP),Syslog, Simple Network Management Protocol (SNMP),Netflow, IOS 15.0 Introduction, Concepts and configuration and trouble shooting	30 Hrs.

Gaining Conceptual Skill for Layer 2 Switching	Basic Switch configuration, Catalyst Switches, Port Security Configuration	10 Hrs.
Acquiring Skills for Advanced Switching Concepts	Virtual LAN (VLAN) Basics, Inter VLAN Routing, Spanning Tree protocol (STP), Advance STP Concepts, Ether Channel, Wireless Networking in detail	20 Hrs.
Learning Network Address Translation (NAT) and Security Skills	Network Address Translation (NAT) concepts, Types of NAT, Introduction to Access Control Lists (ACLs), Type of ACLs. Configuring ,Testing and Troubleshooting NAT and ACLs	20 Hrs.
Obtaining skills for Wide Area Networks	Introduction to Wide Area Networks, High-Level Data-Link Control (HDLC) Protocol, Point-to-Point Protocol (PPP), Frame Relay, Configuration and troubleshooting of WAN protocols	20 Hrs.

Name of Unit of qualification: Develop skills to implement Client Server Network using Linux Operating System

Duration: **210 hrs.**

Topics: **Linux**

Performance Criteria (OUTCOME) No.	Contents	Hrs.
Acquiring Basic Linux Skills	Shell Prompt and Basic Commands, Input-output Redirection, Regular Expressions, Grep Command usage, Usage of help/wildcards, Usage of tar, star, gzip, and bzip2 for compression, decompression, zip and unzip utilities, Create, delete, copy, and move files and directories, Usage of hard links and soft links, File Permissions	60 Hrs.
Acquiring Skills on User and Group Management	Concepts of Users and Groups (Creation and Deletion), Permissions (Normal and Special), Concept of Sudo User, ACLs, Umask and other File System Level Permissions, Advance User Management	35 Hrs.
Acquiring Skills on File System Concepts and Management	Basics of File System, Creation and deletion of partitions, usage of LVM, Concept of Disk quotas, Swap Space, UUIDs	35 Hrs.
Acquiring Skills for Software, Processes and Scheduling Management	Installing and updating Software packages, Usage of rpm/yum, Process management in Linux, at and cron scheduling tasks, Configuration of time services	30 Hrs.
Acquiring Skills in Networking and Security in Linux	Basic Networking Concept in Linux Configure Firewall settings, Using SSH for remote login and Advance concepts in SSH, Concept of SELinux, Detailed Usage of SELinux	30 Hrs.
Acquiring Installation, Run Levels and other Advance Concepts in Linux	Linux Installation, Usage of Kickstart in installing linux, Advance installation concepts, Run levels in Linux, Shell Scripting Concepts, Virtualization in Linux	50 Hrs.
Acquiring Detailed knowledge about various Server Configurations	Apache Web Server, DHCP Server, DNS Server, vsftpd ftp server, Syslog Server, Postfix Mail Server, Samba Server, NFS Server, Squid Proxy Server,	60 Hrs.

Name of Unit of qualification: Develop skills to implement Client Server Network using Windows Server 2012

Duration: **210 hrs.**

Topics: **Windows Server 2012**

Performance Criteria (OUTCOME) No.	Contents	Hrs.
Acquiring Basic Window Client Skills	Remote desktop, Window remote assistance, Local group policy, Group policy, Security & Permission, Disk Management, Password Recovery Management	20 Hrs
Acquiring Skills to Deploy and Manage Windows Server 2012 Roles and features	Installing Windows Sever and it Configuration, Managing Local Storage, Remote login Management, Coverage of File and print Services in detail	25 Hrs
Acquiring skills to Implement Domain Controllers and Active Directory Services.	Installation of Domain Controllers and its Management, Installation of Active Directory Services and its Management, Active Directory Domain Services Objects	25 Hrs
Acquiring Skills to Implement Group Policy, Account policy and Security	Configuration of Group Policies, Group Policy Objects, Group Policy Preferences, Account Policies, Security Policies Application Security Policies and Windows Firewall.	25 Hrs
Acquiring Skills to Manage and Monitor Windows Server 2012	Windows Deployment Service, Patch Management, Monitoring events , Configure Network Monitoring, Performance Monitoring	25 Hrs
Acquiring skills for File and disk Encryption and Audit policies	Install and configure File Server Resource Manager, Bit Locker Encryption and Policies, Audit Policies and Advance Concepts in Auditing	25 Hrs
Acquiring detailed skills about various types of Server Configurations and VPNs in Windows 2012 Server	Configuring and managing DHCP Server, DNS Server, Network Policy Server, Web Server, FTP Server, Configuring VPNs	40 Hrs
Acquiring skills about Virtualization in Windows 2012 Server	Configuring and managing Hyper-V in detail, Virtual Machine Storage Concept, Configure Virtual networks	25 Hrs