

# **BU-COMMUNITY COLLEGE CONSULTANCY CENTRE**

## **REVISED SYLLABUS – 2021-22 FOR DIPLOMA IN HARDWARE AND NETWORKING**



**BHARATHIAR UNIVERSITY  
COIMBATORE-641046**



**BHARATHIAR UNIVERSITY, COIMBATORE.**  
**DIPLOMA IN HARDWARE AND NETWORKING**  
**(Community College)**

**(for the candidates admitted from the academic year 2021 - 2022 onwards)**

**Minimum qualification for admission** to Diploma Course in Hardware and Networking is a pass in Standard X.

**SCHEME OF EXAMINATIONS**

<b>S. No</b>	<b>Title of the Course</b>	<b>Credits</b>	<b>Maximum Marks</b>
1	Computer Hardware	4	100
2	Basics of Hardware , Networking & Communication Skills	4	100
3	Advanced Hardware Concepts	4	100
4	Basics of Networks	4	100
5	Practical: Hardware Lab	4	100
6	Practical : Network Lab	4	100
7	Practical : Unix and Communication Lab	4	100
8	Project	4	100
	Total	32	800

**Question paper Pattern: Theory**

**Section A:** (10 x 2=20 Marks)

Answer ALL the questions

**Section B:** (5 x 6 = 30 Marks)

Answer ALL the questions either (a) or (b)

**Section C:** (5 x 10 = 50)

Answer ALL the questions either (a) or (b)

Duration of examinations for all papers is three hours.

\*Minimum Pass Mark: 40 Marks

**PAPER I**  
**COMPUTER HARDWARE**

<b>Unit:1</b>	<b>Fundamental of Computer</b>	
<b>Fundamental of Computer:</b> Basics: Computer Block diagram - Types of computers: PC, Workstation, Mini Computer, Main Frame, Super Computer.		
<b>Unit:2</b>	<b>Components</b>	
<b>Components:</b> PC Main Parts: CPU Box, Monitor, & Peripherals [Keyboard, Mouse, Speaker]. Inside CPU Box: I/O Cards, Cables, Floppy Drivers, HDD, CD-Drive, Mother Board. <b>Mother Board:</b> Nomenclature, technology, standards AMD CPUs, Cyrix CPUs. CPUs: CPU over clocking, troubleshooting, CPU problems. Chip Sets: AMD chip sets, Intel chip sets, VIA chip sets SIS. chip sets, OPTI chipsets, Legacy and support ICS.		
<b>Unit:3</b>	<b>Memory</b>	
<b>Memory:</b> Basic Concept - Types of Memory - RAM and ROM - Memory Chips: RAM and ROM EPROM - Memory Modules and packaging - Logical and Physical organization of memory in computer - Cache Memory - LX and LZ, EDO – Terminologies in computer memory.		
<b>Unit:4</b>	<b>PC-Assembly and CMOS Setup and Troubleshooting</b>	
<b>PC-Assembly and CMOS Setup and Troubleshooting:</b> Floppy drives: HDD, CD, and SMPS - Identification of cables and computers - Mounting motherboard in cabinet Installation of cards - devices - connecting cables - Fitting of cabinet - CMOS – Setup Troubleshooting.		
<b>Unit:5</b>	<b>Basic of Printers</b>	
<b>Basic of Printers:</b> Types of printers - printing mechanism – Functionality of printers: Inject printer, laser printer - Fonts/Typefaces -Trouble shooting printers.		
<b>Text Book(s)</b>		
1	Winn L Rosch, Hardware bible, Techmedia publications, Sixth Edition.	
2	Stephon J Bigelow, Trouble shooting, maintaining and repairing PCs, Tata McGraw Hill Publication , Fifth Edition	
3	Manohar Lotia, Pradeep Nair, Bijal Lotia , Modern All about printers, BPB publications,2003	

**PAPER II****BASICS OF HARDWARE, NETWORKING & COMMUNICATION SKILLS**

<b>Unit:1</b>	<b>Number systems</b>	
<b>Number systems</b> – Decimal, Binary, Octal, Hexadecimal – Conversions– LOGIC GATES – Universal GATES – NAND - NOR – Karnaugh maps -Tabulation and Simplifications- Basics of Sequential and Combinational logic – Multiplexer and Demultiplexer basics - GRAY code – ASCII code representation		
<b>Unit:2</b>	<b>Introduction to Memories</b>	
<b>Introduction to Memories</b> – Types of memories – Registers – Caches – Primary and Secondary memory - Associative memory – Virtual memory– Optical discs – Flash memory systems		
<b>Unit:3</b>	<b>Basic computer hardware architecture</b>	
<b>Basic computer hardware architecture</b> - Functional units – Instruction formats – types – Addressing modes- Basic I/O devices – Keyboard –Console systems – Mouse – Printer – plotters – Scanners – Basic CPU architecture		
<b>Unit:4</b>	<b>Overview of UNIX OS</b>	
<b>Overview of UNIX OS</b> - File I/O – File Descriptors – File sharing – Files and directories – File types - File access permissions – File systems Introduction - Message passing (SVR4)- pipes – FIFO – message queues - Mutexes – condition variables – read – write locks – file locking – record locking – semaphores –Shared memory(SVR4).		
<b>Unit:5</b>	<b>Job Application</b>	
<b>Job Application</b> : Cover Letter, Resume - Interview skills, Group discussion, Soft skills - Inter & Extra Personal skills - Problem solving - Reflective thinking - Critical thinking - Negotiation Skills - Entrepreneurial Skills -Team working skills -Management & Professional ethics - Morals - Leadership Skills		
<b>Reference Books</b>		
1	Charles H.Roth Jr. Fundamentals of Logic design – 4th edition – Jaico publishing house, Fourth Edition.	
2	Hayes – Computer Architecture and organization – TMH , 2017	
3	Carl Hamacher.V., Zvonko G. Vranesic, Safwat G.Zaky “Computer organization” TMH, 2011	
4	W.Richard Stevens, Advanced programming in the UNIX environment,AddisonWesley,2013.	
5	W.Richard Stevens, UNIX Network Programming Volume 1,2,Prentice Hall International,2003.	

**PAPER III****ADVANCED HARDWARE CONCEPTS**

<b>Unit:1</b>	<b>Keyboard and mouse interfaces</b>	
<b>Keyboard and mouse interfaces</b> , Display - Video and LCD displays - CRT controller - Graphics controller, Audio / Video cards, printers, Interface standards – Serial- PS2		
<b>Unit:2</b>	<b>Floppy Disks</b>	
<b>Floppy Disks</b> - Controllers and Standards - Hard disks - Formats, Controllers and Interface Standards-SCSI-PCI-ATA-XTA- High capacity - Magnetic storage techniques - RAID.		
<b>Unit:3</b>	<b>Personal Computer Architecture</b>	
<b>Personal Computer Architecture</b> - IBMPC, PC/XT, PC/AT System configuration - ROM BIOS - Device drivers - Introduction to other personal computers/workstations/network computers.		
<b>Unit:4</b>	<b>Standards in PC Architecture</b>	
<b>Standards in PC Architecture</b> – BUS standards, System Bus, communication Interface, Plug and play Systems.		
<b>Unit:5</b>	<b>Hardware and Software diagnostic tools</b>	
<b>Hardware and Software diagnostic tools</b> –Benchmarks –Toy Benchmarks - Power on self test Data recovery utilities.		
<b>Reference Books</b>		
1	Mueller.S, Upgrading and repairing PCS, 4th Edition, Que Publication, 2015	
2	Govindarajulu.B, IBM PC and Clones Hardware trouble shooting and maintenance McGraw Hill, 2002.	
3	Rosch, Winn Rosch Hardware Bible, B.P.B, Publication Ltd., Sixth Edition	
4	D.V.Hall, Microprocessors and Interfacing Programming and Hardware, Mc Graw Hill, 2017.	

**PAPER IV****BASICS OF NETWORKS**

<b>Unit:1</b>		
Communication model - Data communications networking – Data transmission concepts and terminology- Protocol architecture - Protocols - OSI - TCP/IP - LAN architecture - Topologies - MAC - Ethernet, Fast Ethernet, Token ring, FDDI, Wireless LANS.		
<b>Unit:2</b>		
Network layer - Switching concepts - Circuit switching networks -Packet switching - Routing - Congestion control - IP – Unreliable connectionless delivery - Datagram's - Routing IP datagram's - ICMP.		
<b>Unit:3</b>		
Transport layer - Reliable delivery service - Congestion control -connection establishment - Flow control - Transmission control protocol - User datagram protocol.		
<b>Unit:4</b>		
Applications - Sessions and presentation aspects - DNS, Telnet, rlogin,FTP, SMTP – WWWBasics of Firewalls		
<b>Unit:5</b>		
Frame Relay-Packet switching networks-Frame Relay networks, Asynchronous transfer modeATM protocol Architecture-ATM Logical connection-ATM cells-ATM service categories – ATM adaption layer(AAL)		
<b>Reference Books</b>		
1	Larry L.Peterson & Bruce S.Davie, Computer Networks - A systems Approach, 6 th edition, Harcourt Asia/Morgan Kaufmann, 2021.	
2	William Stallings, Data and Computer Communications, 8th edition, PHI, 2007.	



**PAPER V**  
**PRACTICAL**  
**HARDWARE LAB**

1	Connecting & disconnecting computer peripherals and components & driver installation
2	Hard disk partitioning and formatting
3	OS installation like Windows 95, 98, 2000, 2003, XP, 7
4	OS installation like FAT, NTFS
5	Internal component assembling and disassembling
6	Basic trouble shoots using beep Sound
7	Dual OS installation

**PAPER VI**  
**PRACTICAL**  
**NETWORK LAB**

1	Study of different type of cable and implement the cross wired cable and straight through cable
2	Study of network devices
3	Study of network IP
4	Assigning and identifying valid IP Addresses.
5	Configure network computers using switch
6	Installation of Network Interface Card (NIC)
7	Develop applications using TCP Sockets for i) File transfer and ii) Remote command execution

**PAPER VII**  
**PRACTICAL**  
**UNIX AND COMMUNICATION LAB**

1	Program using system calls: create, open, read, write, close, stat, fstat, lseek
2	Program to implement inter process communication using pipes
3	Program to perform inter process communication using message queues
4	Program to perform synchronization using semaphores
5	Perform a role play activity by introducing someone
6	Form group of 6 members and perform group discussion on various societal and technical topics
7	Form group of 5 members and perform activity to establish leadership skills (like Team competition, Marketing)