Bharathidasan University,Trichy
Diploma in Computer Hardware and Networking

Subject of Study and Scheme of Examination
(for the candidates admitted from 2006-2007 onwards)

Semester	Paper	Instruction Hours	Exam Hours	Total Marks
I	PAPER 1 BASICS OF HARDWARE & C PROGRAMING	6	3	100
	PAPER 2 ADVANCED HARDWARE CONCEPTS	6	3	100
	PAPER 3 HARDWARE LAB	6	3	100
II	PAPER 4 BASICS OF NETWORKS	6	3	100
	PAPER 5 ADVANCED NETWORK CONCEPTS	6	3	100
	PAPER 6 UNIX AND NETWORK PROGRAMMING LAB	6	3	100

ELIGIBILITY --- PASS IN +2 . U.G CANDIDATES CAN DO THIS CONCURRENTLY

SYLLABUS

DIPLOMA IN COMPUTER HARDWARE AND NETWORKING

SEMESTER I

PAPER 1 BASICS OF HARDWARE & C PROGRAMING

UNIT – I

Number systems – 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

UNIT –II

Introduction to Memories – Types of memories – Registers – Caches – Primary and Secondary memory - Associative memory – Virtual memory– Optical discs – Flash memory systems

UNIT-III

Basic computer hardware architecture - Functional units – Instruction formats – types – Addressing modes- Basic I/O devices – Keyboard – Console systems – Mouse – Printer – plotters – Scanners – Basic CPU architecture

UNIT- IV

C programming –constants, variables and data types, operators and output operators-decision making and breaching-decision making and looping.

UNIT – V

Arrays-Handling of character strings-User defined functions-Structures and union-Pointers-Files

References

1.Charles H.Roth Jr. Fundamentals of Logic design – 4th edition – Jaico publishing house
2. Hayes – Computer Architecture and organization – TMH 1998
3. Carl Hamacher.V., Zvonko G. Vranesic, Safwat G.Zaky "Computer organization" TMH
4. Thomas C.Bartee Computer architecture and Logic design TMH 1997
5.programming in ANSI C -E.Balagurusamy,Third edition

PAPER 2 ADVANCED HARDWARE CONCEPTS

UNIT – I

Keyboard and mouse interfaces, Display - Video and LCD displays - CRT controller - Graphics controller, Audio / Video cards, printers, Interface standards – Serial- PS2

UNIT-II

Floppy Disks - Controllers and Standards - Hard disks - Formats, Controllers and Interface Standards-SCSI-PCI-ATA-XTA- High capacity Magnetic storage techniques - RAID.

UNIT-III

Personal Computer Architecture - IBMPC, PC/XT, PC/AT System configuration - ROM BIOS - Device drivers, Introduction to other personal computers/workstations/network computers.

UNIT-IV

Standards in PC Architecture – BUS standards, System Bus, communication Interface, Plug and play Systems.

UNIT-V

Hardware and Software diagnostic tools –Benchmarks –Toy Benchmarks - Power on self test -Data recovery utilities.

References:

1. Mueller.S, Upgrading and repairing PCS, 4th Edition, Prentice Hall, 1995.

2. Govindarajulu.B, IBM PC and Clones Hardware trouble shooting and maintenance McGraw Hill, 1993.

3. Rosch, Winn Rosch Hardeare Bible, 2nd Edition, B.P.B, Publication Ltd.,1996.

4. D.V.Hall, Microprocessors and Interfacing Programming and Hardware, Mc Graw Hill,1986.

Semester –I

PAPER 3 PRACTICAL 1 HARDWARE LAB

1) Connecting & disconnecting computer peripherals and components & driver installation

2) Hard disk partitioning and formatting

3) O.S installation like 95,98,2000,2003

4) NTFS O.S installation like Linux, Unix

5) Internal component assembling and dissembling

6) Basic trouble shoot using beep code

7) Dual O.S installation

SEMESTER – II

PAPER 4 BASICS OF NETWORKS

UNIT - I

Communication model - Data communications networking - Data transmission concepts and terminology

UNIT-II

Protocol architecture - Protocols - OSI - TCP/IP - LAN architecture - Topologies - MAC - Ethernet, Fast Ethernet, Token ring, FDDI, Wireless LANS.

UNIT-III

Network layer - Switching concepts - Circuit switching networks - Packet switching - Routing - Congestion control - IP - Unreliable connectionless delivery - Datagram's - Routing IP datagram's - ICMP.

UNIT-IV

Transport layer - Reliable delivery service - Congestion control - connection establishment - Flow control - Transmission control protocol - User datagram protocol.

UNIT-V

Applications - Sessions and presentation aspects - DNS, Telnet, rlogin, FTP, SMTP – WWW-Basics of Firewalls

References:

1. *Larry L.Peterson & Bruce S.Davie, Computer Networks - A systems Approach, 2nd edition, Harcourt Asia/Morgan Kaufmann, 2000.*
2. *William Stallings, Data and Computer Communications, 5th edition, PHI,1997.*

SEMESTER II

PAPER 5 ADVANCED NETWORK CONCEPTS

UNIT – I

Different Transmission Medias – Ethernet Cards and Standards – Connectors RJ45 – Cross-cabling and Direct cabling

UNIT - II

Networking Components – Hubs –Bridges – Switches – Switching and Forwarding Routers – Brouters - Gateways

UNIT -III

Addressing – Sub netting – Domain concepts

UNIT-IV

Overview of UNIX OS - 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).

UNIT – V

Introduction – transport layer – socket introduction - TCP sockets – UDP sockets - raw sockets – Socket options - I/O multiplexing - Name and address conversions

References:

1. W.Richard Stevens, Advanced programming in the UNIX environment,AddisonWesley,1999.
2. W.Richard Stevens, UNIX Network Programming Volume 1,2, Prentice Hall International,1998.
3. William Stallings, Data and Computer Communications, 5th edition, PHI,1997.
4. Andrew Tanenbaum Computer Networks PHI

SEMESTER II

PAPER 6

PRACTICAL 2-UNIX AND NETWORK PROGRAMMING 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. Program using TCP sockets (Client and Server)
6. Program using UDP sockets (Client and Server)