

BHARATHIAR UNIVERSITY::COIMBATORE 641 046
BACHELOR OF HARDWARE SYSTEMS & NETWORKING

SCHEME OF EXAMINATION-CBCS PATTERN

(FOR STUDENTS ADMITTED FROM THE ACADEMIC YEAR 2012-13 ONWARDS)

Part	Study components	Course Title	Ins.hrs/Week	Examination				Credit
				Dur.Hr	CIA	Marks	Total Marks	
	<u>Semester-I</u>							
I	Language-I		6	3	25	75	100	4
II	English-I		6	3	25	75	100	4
III	Core-1 :Fundamentals of IT		4	3	25	75	100	4
	Core-2: Operating systems		4	3	25	75	100	4
	Core-3: Computer Architecture		3	3	25	75	100	4
	Allied 1: DISCRETE MATHEMATICS		5	3	25	75	100	4
IV	Environmental studies		2	3	-	50	50	2
	<u>Semester-II</u>							
I	Language- II		6	3	25	75	100	4
II	English-II		6	3	25	75	100	4
III	Core-4: Computer Storage Devices		6	3	25	75	100	4
	Core Lab-1 : PC assembling Lab		4	3	40	60	100	4
	Allied 2:Computer–Based Optimization Techniques		6	3	25	75	100	4
IV	Value Education-Human Rights		2	3	-	50	50	2
	<u>Semester-III</u>							
III	Core-5: Interfaces of Computer		6	3	25	75	100	4
	Core-6 : Programming in C++		6	3	25	75	100	4
	Core Lab-2 : Programming in C++		5	3	40	60	100	4
	Allied 3: Computer Networks		6	3	25	75	100	4

IV	Skill based subject-1: Digital Electronics	5	3	20	55	75	3
IV	Tamil @ / Advanced Tamil# (OR) Non-major elective - I (Yoga for Human Excellence)# / Women's Rights#	2	3	50		50	2
	<u>Semester IV</u>						
III	Core 7: Fundamentals Of Microprocessor	6	3	25	75	100	4
	Core 8: Internet & LAN Technology	6	3	25	75	100	4
	Core Lab-3: Fundamentals of microprocessor	6	3	40	60	100	4
	Allied -4 : Management information system	6	3	25	75	100	4
IV	Skill based Subject Lab-1: Digital Electronics Lab	4	3	30	45	75	3
IV	Tamil@/Advanced Tamil# (OR) Non-major elective (General Awareness #)	2	3	50		50	2
	<u>Semester V</u>						
III	Core 9: PC Diagnostics & Troubleshooting	6	3	25	75	100	4
III	Core 10: Software Testing	6	3	25	75	100	4
III	Core-11 : Multimedia	6	3	25	75	100	4
	Core-Lab 4: Computer Hardware Maintaiancae	4	3	40	60	100	4
	Core Lab 5: Multimedia	5	3	40	60	100	4
IV	Skill based Subject 2 -: Web Technology	3	3	20	55	75	3
	<u>Semester- VI</u>						
III	Core 12 : Server Administration	6	3	25	75	100	4
III	Core-13 : Network Security & Cryptography	6	3	25	75	100	4
	Core Lab 6: Server Administration Lab	6	3	40	60	100	4
	Industrial Project	8	3	100	150	250	10
IV	Skill based subject Lab-2: Web Technology Lab	4	3	30	45	75	3
V	Extension Activities @	-	-	50	-	50	2
	Total					3500	140

SEMESTER-I

CORE-1: FUNDAMENTALS OF IT

Unit-I

Development of the PC-Computer History Before Personal Computers-Mechanical Calculators-The First Mechanical Computer-Electronic Computers-Modern Computers-Integrated Circuits-History of the PC-Birth of the Personal Computer-The IBM Personal Computer-The PC Industry More Than 20 Years Later

Unit-II

What Is a PC-Who Controls PC Software-Who Controls PC Hardware-System Types-Differences Between PC/XT and AT Systems-System Components-Basic PC Components-Pre-PC Microprocessor History-Processor Specifications-Intel/AMD Server/Workstation Processor Specifications-Processor Physical Memory-Addressing Capabilities-Processor Modes-IA-32 Virtual Real Mode-Windows XP 32-Bit Versus 64-Bit-Processor Speed Ratings-Processor Speeds and Markings Versus Motherboard Speed-AMD P-Ratings Versus Actual Chip Speeds in MHz-Number of Pipelines per CPU-Overclocking-Overclocking Pitfalls-Overclocking Socket A Processors-CPU Voltage Settings-Cache Memory-Internal Level 1 Cache-How Cache Works-Level 2 Cache-Cache Performance and Design-Cache Organization

Unit-III

CPU Speeds Relative to Cache, RAM, and Motherboard-Processor Features-SMM - Superscalar Execution-MMX Technology-SSE, SSE2, and SSE3-3DNow!, Enhanced 3DNow!, and Professional 3DNow-Dynamic Execution-Branch Prediction-Dataflow Analysis-Speculative Execution-Dual Independent Bus Architecture-Hyper-Threading Technology-How Hyper-Threading Works-Dual-core Technology-Processor Manufacturing-Processor Re-marking-PGA Chip Packaging-Single Edge Contact and Single Edge Processor Packaging-SECC2 packaging used in newer Pentium II and III processors-Processor Socket and Slot Types-Zero Insertion Force-Socket 1-Socket 2-Socket 3-Socket 4-Socket 5-Socket A (Socket 462)- Socket 939 and 940-Processor Slots- CPU Operating Voltages-Heat and Cooling Problems-Math Coprocessors (Floating-Point Units)- Maximum Math Chip speeds

Unit-IV

Older Intel Math Coprocessor Specifications-Processor Bugs-Microcode and the Processor Update Feature-Processor Codenames-P1 (086) First-Generation Processors-8088 and 8086 Processors-8087 Coprocessor- P2 (286) Second-Generation Processors- 286 Processors-80287 Coprocessor- P3 (386) Third-Generation Processors- 386 Processors- 386DX Processors- 386SX Processors- 386SL Processors- 80387 Coprocessor- P4 (486) Fourth-Generation Processors- 486 Processors- 486DX Processors- 486SL- 486SX-DX2/OverDrive and DX4 Processors- Pentium OverDrive for 486SX2 and DX2 Systems-AMD 486 (5x86)- Cyrix/TI 486- P5 (586) Fifth-Generation Processors- Pentium Processors-First-Generation Pentium Processors- Second-Generation Pentium Processors- Pentium-MMX Processors-

Unit-V

AMD-K5- Intel P6 (686) Sixth-Generation Processors- Dynamic Execution- Dual Independent Bus- Other Sixth-Generation Improvements- Pentium Pro Processors- Pentium Pro Processor Specifications by Processor Model- Pentium II Processors- Celeron- A Brief Celeron History- Celeron CPU Variations- Socket 478 Celeron and Celeron D Processors- AMD Athlon, Duron, and Athlon XP- AMD Duron- AMD Athlon XP- Athlon MP- Sempron (Socket A)- Dual-Core Processors- Who Needs a Dual-Core Processor- Intel Pentium D and Pentium Extreme Edition- AMD Athlon 64 X2 and **Dual-Core Opteron Processors**

TEXT-BOOKS

1. **Upgrading and Repairing PC's**, 17th Edition By 'Scott Mueller' ;Publisher: Que ;Pub Date: March 24, 2006 ; Print ISBN-10: 0-7897-3404-4
2. **Govinda Rajulu B, "PC IBM and Clones – Hardware, Troubleshooting and Maintenance"**, Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991
3. **Hardware bible** By : Winn L Rosch, Techmedia publications
4. **Trouble shooting, maintaining and repairing PCs** By :Stephon J Bigelow Tata McGraw Hill Publication
5. **Modern All about printers** By: Manohar Lotia, Pradeep Nair, Bijal Lotia BPB publications.
6. **The complete PC upgrade and maintenance guide** By:Mark Minasi, BPB Publications.

CORE-2: OPERATING SYSTEMS

UNIT-I:

Operating System Overview: Operating System Objectives and Functions – The Evolution of Operating Systems – Major Achievements – Developments Leading to modern Operating Systems – Microsoft Windows Overview – Traditional UNIX Systems – Modern UNIX Systems – Linux 95.

UNIT-II:

OS-Functions and Structure: Different Services of Operating System – Operating System Structure – Booting. **Information Management:** The File System - Device Driver.

UNIT-III

Process Management: What Is A Process? – Evolution of Multiprogramming –Context Switching – Process States – Process State Transitions – Operations on a Process.

UNIT-IV

Memory Management: Introduction – Single Contiguous Memory Management –Fixed Partition Memory Management – Variable Partitions – Non-contiguous Allocation –Paging – Segmentation – Combined Systems – Virtual Memory Management Systems.

UNIT-V

Distributed Processing, Client/Server and Clusters: Client/Server Computing –Distributed Message Passing- Remote Procedure Calls – Clusters –Windows Cluster – Sun Cluster – Beowulf And Linux Clusters.

TEXTBOOKS:

1. **OPERATING SYSTEMS Internals and Design Principles – William Stallings**, 5th edition, PHI. (UNIT-I: 2.1-2.8 UNIT-V: 14.1-14.7)
2. **OPERATING SYSTEMS – Achyut Godbole**, 2nd edition, TMH. (UNIT II: 3.2, 3.7, 3.9, 4.2, 4.3 UNIT-III: 5.2-5.6, 5.9 UNIT-IV: 8.1-8.9)
3. **OPERATING SYSTEMS Concepts and Design – Milan Milankovic**, 2nd edition, TMH.

CORE-3: COMPUTER ARCHITECTURE**Unit-I**

Motherboard Form Factors- PC and XT- Full-Size AT- Purchasing LPX Motherboards- ATX- Heatsinks and Boxed Processors- Built-in Ports Usually Found on ATX Motherboard- ATX Riser- microATX- Intel Extreme Graphics Architecture- AMD Chipsets- Traditional North/South Bridge Architecture- Hub Architecture- Chipsets- Pentium Pro Motherboard Chipsets (North Bridge)- Intel 810, 810E, and 810E2- Intel Random Number Generator- Intel 815 Family- Integrated Ethernet- AGP Inline Memory Module- PC133 Memory Support- Intel 820 and 820E- 820. Chipset MTH Bug- Intel 840- Third-Party (Non-Intel) P6-Class Chipsets-VIA South Bridge Chips Used with P6-Class Chipsets-Seventh-Generation (Pentium 4)

Unit-II

Apollo P4X400, P4X400A, and P4X533-PT880 Ultra/PT894/PT894 Pro-AMD Athlon/Athlon XP/Duron Chipsets-AMD-750-AMD-760 Family-VIA - System Bus Types, Functions, and Features-Typical Socket 7 (Pentium class) system architecture.- Typical Socket 370 (Pentium III/Celeron class) system architecture-Typical Socket 478 (Pentium 4) system architecture-The Need for Expansion Slots-Types of I/O Buses-The ISA Bus-The 8-Bit ISA Bus-The 16-Bit ISA Bus-32-Bit Buses-The Micro Channel Bus-The EISA Bus-16/32-Bit ISA/PCI/AGP Default Interrupt Assignments-PCI Interrupts-IRQ Conflicts-DMA Channels-8-Bit ISA Bus DMA Channels-I/O Port Addresses-Motherboard and Chipset-Based Device Port Addresses-Resolving Resource Conflicts-Resolving Conflicts Manually-Using a System-Configuration Template-Heading Off Problems: Special Boards-Sound Cards- - Network Interface Cards-Multiple-COM-Port Adapters-Universal Serial Bus-Miscellaneous Boards-Plug-and-Play Systems

Unit-III

BIOS Basics-BIOS Hardware/Software-BIOS and CMOS RAM-Motherboard BIOS-ROM Hardware-ROM Shadowing-ROM Chip Types-ROM (True or Mask ROM)- PROM-Custom Programming of PROM Chips-EPROM-EEPROM/Flash ROM-Non-PC ROM Upgrades-ROM BIOS Manufacturers-OEMs-AMI-Award-Phoenix-Microid Research BIOS-Upgrading the BIOS-Where to Get Your BIOS Update-Determining Your BIOS Version-Checking the BIOS Date-Backing Up Your BIOS-Backing Up Your BIOS's CMOS Settings-KeyBoard Controller Chips-Using a Flash BIOS-Flash BIOS Recovery-Motherboard BIOS recovery jumper-Using IML System Partition BIOS-Year 2000 BIOS Issues-Preboot Environment-CMOS Setup Specifications-Running or Accessing the CMOS Setup Program-BIOS Setup Menus-Maintenance Menu-Main Menu-Advanced Menu-Boot Configuration Submenu-Additional Advanced Feature-Overclocking/Burn-in Test Features-Peripheral Configuration-ATA Configuration Submenu-ATA Configuration Submenus-Typical ATA Drive Settings-

Floppy Configuration Submenu-Video Configuration-USB Configuration Submenu-Fan Control Configuration Submenu-Security Menu-Power Menu-Boot Menu (Boot Sequence, Order)- Boot Device Priority Submenu-Exit Menu- Plug and Play BIOS- PnP Device IDs- ACPI- Initializing a PnP Device- BIOS Error Messages- General BIOS Boot Text Error Messages- ROM BIOS Messages Indicating Boot Failure- IBM ROM Basic-

Unit-IV

Memory Basics- ROM- DRAM- Cache Memory: SRAM- RAM Types and Performance- Processor Bus Bandwidth- Fast Page Mode DRAM- Extended Data Out RAM- SDRAM- DDR SDRAM- DDR2 SDRAM RDRAM- Memory Modules- SIMMs, DIMMs, and RIMMs- SIMM, DIMM, and RIMM Capacities- Registered Modules- SIMM Pinouts- DIMM Pinouts- DDR2 DIMM Pinouts- RIMM Pinouts- Possible Keying Options for RIMMs- Module Capacity Using 512Mb (64Mbit x 8) Chips- Memory Bank Widths on Various Systems- Memory Module Speed- Parity and ECC- Parity Checking- How Parity Checking Works- Error Correcting Code- Installing RAM Upgrades- Upgrade Options and Strategies- Suppliers- Considerations in Purchasing DIMMs- Replacing Modules with Higher-Capacity Versions- Installing DIMM or RIMM Modules- Installing SIMM Modules- Troubleshooting Memory- Memory Defect Isolation Procedures- The System Logical Memory Layout- Conventional (Base) Memory- Upper Memory Area- Video RAM Memory- Video Graphics Array Memory- Video Adapter BIOS- Network Adapters- Motherboard BIOS Memory- Extended Memory- XMS Memory- Preventing ROM BIOS Memory Conflicts and Overlap- ROM Shadowing- Total Installed Memory Versus Total Usable Memory- Moving Adapter Memory to Resolve Conflicts-

Unit-V

An Overview of the IDE Interface- Precursors to IDE- IDE Origins- ATA Standards- ATA-1 (AT Attachment Interface for Disk Drives)- ATA-2 (AT Attachment Interface with Extensions-2)- ATA/ATAPI-6 (AT Attachment with Packet Interface-6)- SATA/ATAPI-8- Parallel ATA- Second-generation Serial ATA-Serial ATA Transfer Modes-ATA Features- ATA Security Mode-Host Protected Area-ATA Packet Interface-ATA Drive Capacity Limitations- BIOS Limitations-CHS Versus LBA-CHS/LBA and LBA/CHS Conversions- BIOS Commands Versus ATA Commands-CHS Limitations -The 4.2GB Barrier-LBA-Assist Translation-The 137GB Barrier and Beyond-Operating System and Other Software Limitations-ATA RAID

TEXT-BOOKS

1. **Upgrading and Repairing PC's**, 17th Edition By 'Scott Mueller' ;Publisher: Que ;Pub Date: March 24, 2006 ; Print ISBN-10: 0-7897-3404-4
2. **Govinda Rajulu B, "PC IBM and Clones – Hardware, Troubleshooting and Maintenance"**, Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991
3. **Hardware bible** By : Winn L Rosch, Techmedia publications
4. **Trouble shooting, maintaining and repairing PCs** By :Stephon J Bigelow Tata McGraw Hill Publication
5. **Modern All about printers** By: Manohar Lotia, Pradeep Nair, Bijal Lotia BPB publications.
6. **The complete PC upgrade and maintenance guide** By:Mark Minasi, BPB Publications.

ALLIED 1: DISCRETE MATHEMATICS

Unit-I

Set theory-Introduction-Set & its Elements-Set Description-Types of sets-Venn-Euler Diagrams- Set operations & Laws of set theory-Fundamental products-partitions of sets-minsets-Algebra of sets and Duality-Inclusion and Exclusion principle

Unit II

Mathematical logic – Introduction- propositional calculus –Basic logical operations- Tautologies-Contradiction-Argument-Method of proof- Predicate calculus.

Unit III

Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.

Unit IV

Languages – Operations on languages – Regular Expressions and regular languages – Grammar – Types of grammars – Finite state machine – Finite – State automata

Unit V

Graph Theory – Basic terminology – paths, cycle & Connectivity – Sub graphs - Types of graphs – Representation of graphs in compute memory - Trees – Properties of trees – Binary trees – traversing Binary trees – Computer Representation of general trees.

Text Books:

1. **Discrete Mathematics** – J.K. Sharma Second Edition – 2005 , Macmillan India Ltd. (UNIT I TO V)
2. **Discrete Mathematics Structures with Applications to computer science** - J. P Tremblay R Manohar – Mc Graw Hill International Edition
3. **Discrete Mathematics** – Dr M. K. Venketaramen, Dr N.Sridharan, N. Chandarasekaran – The National publishing Company Chennai

SEMESTER-II

CORE-4: COMPUTER STORAGE DEVICES

Unit-I

Magnetic Storage- History of Magnetic Storage- How Magnetic Fields Are Used to Store Data- Read/Write Head Designs- Ferrite- Metal-In-Gap- Thin Film- Magneto-Resistive Heads- Giant Magneto-Resistive Heads- Head Sliders- Data Encoding Schemes- RLL Encoding- Encoding Scheme Comparisons- Partial-Response, Maximum-Likelihood Decoders- Capacity Measurements- Areal Density- Increasing Areal Density with Pixie Dust- Perpendicular Magnetic Recording

Unit-II

Definition of a Hard Disk- Hard Drive Advancements- Form Factors- 5 1/4" Drive- 1" Drives- Hard Disk Drive Operation- The Ultimate Hard Disk Drive Analogy- Tracks and Sectors- Disk Formatting- Partitioning- High-Level Formatting- Basic Hard Disk Drive Components- Hard Disk Platters (Disks- Recording Media- Oxide Media- AFC Media- Read/Write Heads- Read/Write Head Designs- Stepper Motor Actuators- Voice Coil

Actuators- Linear Actuators- Servo Mechanisms- Wedge Servo- Embedded Servo- Automatic Head Parking- Air Filters- Hard Disk Temperature Acclimation- The Faceplate or Bezel- Hard Disk Features- Capacity BIOS Limitations- Operating System Limitations- Performance- Transfer Rate- Average Seek Time- Average Access Time- Cache Programs and Caching Controllers- Interleave Selection- Reliability- SMART- Cost-

Unit-III

The Role of Removable-Media Drives-The Importance of Data Backups-Data Transfer Between Systems-Floppy-based Driver Installation for Removable-Media Devices-Comparing Disk, Tape, and Flash Memory Technologies-Magnetic Disk Media-Magnetic Tape Media-Flash Memory Media-Interfaces for Removable-Media Drives-Floppy Disk Drives, Past and Present-Alternatives to Floppy Drives-Floppy Drive Interfaces-Drive Components-Power and Data Connectors-The Floppy Disk Controller Cable-How the Operating System Uses a Floppy Disk-Analyzing 3 1/2" Floppy Disk Media Construction-Floppy Disk Media Types and Specifications-Floppy Drive Installation Procedures

Unit-IV

High-Capacity Magnetic Storage Devices-Iomega Zip-Iomega REV-Iomega REV Drives-Magneto-Optical Drives-Comparing MO to "Pure" Magnetic Media-Flash Memory Devices-Types of Flash Memory Devices-Comparing Flash Memory Devices-Moving Data in Flash Memory Devices to Your Computer-Key Factors in Selecting a Removable-Media Drive-Microdrive Technology-Tape Drives-Hard-Tape Backup Technologies-Choosing a Tape Backup Drive-Tape Standards and Compatibility-Tape Drive Backup Software-Backup and Restoration Troubleshooting-Motherboard BIOS-ROM Hardware-ROM Chip Types-PROM-EPROM-EEPROM/Flash ROM-ROM BIOS Manufacturers-Flash BIOS -CMOS Setup Specifications

Unit-V

Optical Technology-CD-Based Optical Technology-Data Encoding on the Disc-DVD-Data Encoding on the Disc-Blu-ray Disc-HD-DVD-Optical Disc Formats-CD-ROM XA-Multisession Recording Overview-Photo CD Disc Types-CD-ROM File Systems-DVD Formats and Standards-CD/DVD Read-Only Drives and Specifications-Direct Memory Access and Ultra-DMA-Interface-Loading Mechanism-Internal Versus External Drives-Writable CDs-Recording Software-CD Copy Protection-CD/DVD Drive and Software Installation and Support-Bootting from a Floppy Disk with CD/DVD Drive Support-Troubleshooting Optical Drives

TEXT-BOOKS

1. **Upgrading and Repairing PC's**, 17th Edition By 'Scott Mueller' ;Publisher: Que ;Pub Date: March 24, 2006 ; Print ISBN-10: 0-7897-3404-4
2. **Govinda Rajulu B**, "PC IBM and Clones – Hardware, Troubleshooting and Maintenance", Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991
3. **Hardware bible** By : Winn L Rosch, Techmedia publications
4. **Trouble shooting, maintaining and repairing PCs** By :Stephon J Bigelow Tata McGraw Hill Publication
5. **Modern All about printers** By: Manohar Lotia, Pradeep Nair, Bijal Lotia BPB publications.
6. **The complete PC upgrade and maintenance guide** By:Mark Minasi, BPB Publications.

CORE LAB-1 : PC ASSEMBLING LAB

1. Start Up, Navigate, and Shut Down a Windows System
2. Use Files and Folders
3. CMOS Setup
4. Safely Open the Case to Identify Components
5. Collect Resource Information – Windows 98,XP,Windows 2000
6. Replace s Floppy Drive
7. Replace the Hard Drive
8. Add a Slave Drive
9. Install a Windows Mouse
10. Partition a Hard Drive – FAT32
11. Partition a Hard Drive – Two Partitions-using FDISK
12. Partition HDD-NTFS(Win XP)
13. Disk Management (Hard Disk)
14. Replace a Power Supply
15. Remove and Insert Memory
16. Remove and Replace a Motherboard
17. Troubleshoot Hardware Problems
18. Dual boot Windows XP and Windows 2000

ALLIED-2: COMPUTER BASED OPTIMIZATION TECHNIQUES

UNIT-I:

Linear Programming - Mathematical Model assumption of linear Programming –Graphical method - Principles of Simplex method, Big-M Method ,Duality, Dual simplex method.

UNIT-II:

Transportation and assignment problem - Integer Programming Branch and Round Techniques - Assignment and Traveling Salesman Problem.

UNIT-III:

Game Theory - Concept of Pure and Mixed Strategies – Solving 2 x 2 matrix with and without saddle point - n x 2 - 2 x m games. Replacement models - Elementary replacement models - present value - rate of return - depreciation - Individual replacement – Group replacement.

UNIT-IV:

(Derivations not included) Queuing Theory - definition of waiting line model -Queue discipline - traffic intensity - poisson arrival – Birth death process - Problem from single server: Finite and infinite population model – Problems from multi server: finite and infinite population model.

UNIT-V:

PERT & CPM - Network representation - backward pass - Forward pass - computation - Pert Network - Probability factor – updating and Crashing.

TEXT BOOKS

1. **OPERATIONS RESEARCH** - Manmohan, P.K. Gupta, Kanthiswarup, S. CHAND & SONS - 1997.
2. **OPERATIONS RESEARCH** - Hamdy A Taha, Pearson Education, 7th edition, 2002
3. **PROBLEMS IN OPERATIONS RESEARCH** – P.K. Gupta, D.S. Hira,
(S. Chand Publication)

SEMESTER-III**CORE-5: INTERFACES OF COMPUTER****Unit-I**

Installing All Types of Drives- Hard Disk Installation Procedures- Drive Configuration- Host Adapter Configuration- Physical Installation- Physical Installation Issues for SATA Drives- Physical Installation Issues for SCSI Drives- System Configuration- Automatic Drive Detection- Manual Drive Parameters- Formatting- Low-Level Formatting- High-Level (Operating System) Formatting- FDISK and FORMAT Limitations- Replacing an Existing Drive- Drive Migration for MS-DOS Users- Drive Migration for Windows 9x/Me Users- Hard Disk Drive Troubleshooting and Repair- Installing an Optical Drive- External (SCSI) Drive Hookup- Internal Drive Installation- Ribbon Cable and Card Edge Connector

Unit-II

Video Display Technologies-LCD Panels-How LCD Displays Work-Active-Matrix Displays-LCD Display Sizes and Resolutions-Benefits of LCD Panels-DFP and DVI Interfaces for Digital LCD Panels--Monitor Selection Criteria-The Right Size-Resolution-Dot Pitch (CRTs)- Image Brightness and Contrast (LCD Panels)- Interlaced Versus Noninterlaced-Energy and Safety-Power Management-EmissionsCRTs-Frequencies-Refresh Rates (Vertical Scan Frequency)Horizontal Frequency- Integrated Video/Motherboard Chipsets-Video Adapter Components-The Video BIOS-The Video Processor-Video RAM-Video RAM Speed-RAM Calculations-Video Bus Width--3D Graphics Accelerators-How 3D Accelerators Work-Typical 3D Techniques- Desktop Video Boards-Troubleshooting Video Capture Devices-Adapter and Display Troubleshooting-Troubleshooting Monitors-Troubleshooting Video Cards and Drivers-Display Mate

Unit-III

Audio Hardware-Early PC Audio Adapters-Limitations of Sound Blaster Pro Compatibility-DirectX and Audio Adapters-Major Sound Chip Makers-Motherboard Chipsets with Integrated Audio-A Open TubeSound-3D Audio-3D Audio Processing-Installing the Sound Card-Connecting PC Speakers and Completing the Installation-Using Your Stereo Instead of Speakers-Tricks for Using the Tape Monitor Circuit of Your Stereo-Troubleshooting Sound Card Problems-Other Sound Card and Onboard Audio Problems-One-Sided Sound-Some Speakers Don't Play-Scratchy Sound-Advanced Features-Other Problems-Speakers-Theater and Surround Sound Considerations-Typical Speaker Setups-Microphones

Unit-IV

Introduction to Input/Output Ports-Why Serial-Comparing IEEE 1394 and USB-Universal Serial Bus--USB Technical Details-Enabling USB Support-USB 2.0/Hi-Speed USB-USB On-The-Go-USB Adapters-Legacy-Free PCs-IEEE 1394-IEEE 1394b Technical Details-

Standard Serial and Parallel Ports-Serial Ports-UARTs-High-Speed Serial Port Cards-Onboard Serial Ports-Serial Port Configuration-Microsoft Diagnostics-Parallel-to-SCSI Converters-Testing Parallel Ports-Keyboards-Enhanced 101-Key (or 102-Key) Keyboard-104-Key -Keyboard Technology-Pure Mechanical Switches-Foam Element Switches-Rubber Dome Switches-Membrane Switches-Capacitive Switches

Unit-V

The Keyboard Interface-Typematic Functions-Keyboard Key Numbers and Scan Codes-International Keyboard Layouts-Keyboard/Mouse Interface Connectors-USB Keyboards-Keyboards with Special Features-Multimedia and Web-Enabled Keyboards-USB Keyboards with Hubs-Keyboard Troubleshooting and Repair-ointing Devices-Ball-Type Mice-Optical Mice-Pointing Device Interface Types- Wireless Input Devices Work-Power Management Features of Wireless Input Devices-Wireless Pointing Device Issues-Troubleshooting Wireless Input Devices-PRINTERS:DMP,INKJET,LASER,LINE-Connecting printers to computers. Scanners

TEXT-BOOKS

- 1.**Upgrading and Repairing PC's**, 17th Edition By 'Scott Mueller' ;Publisher: Que ;Pub Date: March 24, 2006 ; Print ISBN-10: 0-7897-3404-4
- 2.**Govinda Rajulu B**, "PC IBM and Clones – Hardware, Troubleshooting and Maintenance", Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991
- 3.**Hardware bible** By : Winn L Rosch, Techmedia publications
- 4.**Trouble shooting, maintaining and repairing PCs** By :Stephon J Bigelow Tata McGraw Hill Publication
- 5.**Modern All about printers** By: Manohar Lotia, Pradeep Nair, Bijal Lotia BPB publications.
6. **The complete PC upgrade and maintenance guide** By:Mark Minasi, BPB Publications.

CORE 6 : PROGRAMMING IN C++

UNIT-I:

Introduction to C++ - key concepts of Object-Oriented Programming –Advantages –Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures :Decision Making and Statements : If .. else ,jump, goto, break, continue, Switch case statements – Loops in C++ : For,While, Do - Functions in C++ - Inline functions – Function Overloading.

UNIT-II :

Classes and Objects : Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.

UNIT-III

Operator Overloading: Overloading unary, binary operators – Overloading Friend functions – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal,Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.

UNIT-IV:

Pointers – Declaration – Pointer to Class , Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding ,Polymorphism and Virtual functions

UNIT-V:

Files – File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions .

TEXT BOOKS:

1. **Ashok N Kamthane** , OBJECT-ORIENTED PROGRAMMING WITH ANSI AND TURBOC C++, Pearson Education publication. 2003.
2. **E. Balagurusamy**, OBJECT-ORIENTED PROGRAMMING WITH C++, Tata Mc-Grawhill Publication, 1998.
3. **Maria Litvin & Gray Litvin** , C++ for you, Vikas publication, 2002.
4. **John R Hubbard**, Programming with C, 2nd Edition, TMH publication, 2002.

CORE LAB - 2 : PROGRAMMING LAB C++

1. Write a C++ Program to create a class to implement the Data Structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element check for overflow and underflow conditions..
2. Write a C++ Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write a Member function ADD (),SUB(),MUL(),DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.
3. Write a C++ Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
4. Write a C++ Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.
5. Write a C++ Program to create a class STRING. Write a Member Function to initialize ,get and display strings. Overload the Operator “+” to Concatenate two Strings, “=” to Compare two strings
6. Write a C++ Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.
7. Write a C++ Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGLE from class Shape and Calculate Area and Perimeter of each class separately and display the result.

8. Write a C++ Program to create two classes each class consists of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.
9. Write a C++ Program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
10. Write a C++ Program to check whether the given string is a palindrome or not using Pointers.
11. Write a C++ Program to create a File and to display the contents of that file with line numbers.
12. Write a C++ Program to merge two files into a single file.

ALLIED 3: COMPUTER NETWORKS

UNIT-I:

Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP -Critique of OSI and protocols – Critique of the TCP/IP Reference model.

UNIT-II:

PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites –Satellites versus Fiber.

UNIT-III:

DATA-LINK LAYER: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB LAYER: Multiple Access Protocols – Ethernet – Wireless LANs - Broadband Wireless – Bluetooth.

UNIT-IV:

NETWORK LAYER: Routing algorithms – Congestion Control Algorithms. TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP.

UNIT-V:

APPLICATION LAYER: DNS – E-mail. NETWORK SECURITY: Cryptography – Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.

TEXT BOOKS:

1. **COMPUTER NETWORKS** – Andrew S. Tanenbaum, 4th edition, PHI.
(UNIT-I:1.2-1.4 UNIT-II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT-V:7.1,7.2,8.1-8.4)
2. **DATA COMMUNICATION AND NETWORKS** – Achyut Godbole, 2007, TMH.
3. **COMPUTER NETWORKS Protocols, Standards, and Interfaces** – Uyles Black, 2nd ed, PHI

SKILL BASED SUBJECT-1: DIGITAL ELECTRONICS

Unit – I:

Digital Computer and Digital Systems – Number Systems :Binary Numbers – Number Base Conversion – Octal and Hexa Decimal Numbers – Complements:1s and 2s complement – Binary Codes: Decimal Codes- Binary Coded Decimal- Error Detecting Codes- Reflected / Gray Code- Excess-3-Code -ASCII Alphanumeric Code

Unit – II:

Boolean algebra and Logic Gates : Basic Definitions – Axiomatic Definition of Boolean Algebra Boolean Functions – Canonical and Standard Forms – Other Logical Operations – Digital Logic Gates – IC Digital Logic Families – Semiconductor Memories – Bipolar – CMOS – ROM –RAM –PROM – EPROM.

Unit-III

Simplification of Boolean Functions – The map method – product of Sums – sum of products – simplifications – NAND and NOR implementation. Don't Care Conditions – the tabulation method.

Unit – IV:

Combinational Logic Circuits: Introduction – Adders: Half and Full Adders- Subtractors: Half and Full subtractors – Code conversion: Conversion from BCD to Excess-3-Code-- Binary Parallel Adder – Decimal Adder – Decoder – encoder – Multiplexers – De-Multiplexers.

Unit-V

Sequential Logic Circuits – Flip Flops – Flip Flop excitation tables – Design counters – Registers, Counters. Registers – shift Registers. – Ripple Counters.

Reference Books

1. Morris Mano, “ Digital Logic and Computer Design” – Prentice Hall of India – 1998.
2. *Digital fundamentals - Thomals Floyd*- Pearson Education India, 01-Sep-2005
3. *Salivahanan. S. Digital Circuits and Design, Vikas Publishing Hosue.*
4. *Roth CH, Fundamentals of logic design, Jaico.*
5. *Digital Logic Design - Elsevier - Brain Holds Worth - dove words*
6. Morris Mano, “Computer System Architecture” – Prentice Hall of India – 1998

SEMESTER-IV

CORE 7: FUNDAMENTALS OF MICROPROCESSOR

Unit-I

MICROPROCESSOR: Introduction of Microprocessor , Block Diagram of Micro Computer , Block Diagram of CPU with system Bus -Architecture–Bus Organization–Bus Organization in Microprocessor , Pin Detail , Diagram of Microprocessor , Data & Address deviation , Generate Control Signal in Microprocessor , Detail of Microprocessor- Functional diagram and pin out diagram of 8085

UNIT-II:

Addressing modes of 8085 – Direct addressing Mode-Indirect Addressing Mode-Data Transfer -Instruction set of 8085 – simple programs

UNIT-III:

I/O Schemes – Peripherals and Interfaces .Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy-Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

UNIT-IV:

Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set associative Mapping – Writing Into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory Page Table, Page Replacement.

UNIT-V:

Introduction to 8086: Pin out diagram -Functional Block diagram of 8086 –Architecture-instruction set-comparison with 8085 & 8086 :Interfacing IC –RISC & CISC

TEXT BOOKS:

- 1.Microprocessor Architecture programming & application with 8085 & 8080 – by Ramesh.s.Gaonkar –Wiley eastern.
- 2.Introduction to microprocessors – Adithya.P.Mathus – TMH Publication.
- 3.Microprocessor interfaces – Douglas Hall – MC Graw Hill.
- 4.8086/8088 family Design, programming and interfacing by John Utter Bery - PHI.
- 5.8086/8088 microprocessors - Brey - PHI.
- 6.Microprocessors PC Hardware and interfacing –N.Mathivanan -PHI

CORE 8: INTERNET & LAN TECHNOLOGY**Unit-I**

Relating Internet and LAN Connectivity- Comparing Broadband and Dialup Modem Internet Access- Broadband Internet Access Types- High Speed = Less Freedom- Cable Modems- Connecting to the Internet with a "Cable Modem"The Cable Modem and the CATV Network- CATV Bandwidth- CATV Performance- CATV Internet Connection Security

Unit-II

Digital Subscriber Line- How DSL Works- Who Can Use DSLand Who Can't- Major Types of DSL- DSL Pricing-DSL Security Issues- Technical Problems with DSL-Integrated Services Digital Network-How Standard ISDN Works-Acquiring ISDN Service-ISDN Hardware-Comparing High-speed Internet Access-Having a Backup Plan in Case of Service

Interruptions-Leased Lines-Comparing Conventional High-speed Services-Securing Your Internet Connection

Unit-III

Asynchronous (Dialup) Modems-Modem Standards-Bits and Baud Rates-Modulation Standards-Error-Correction Protocols-Data-Compression Standards-MNP5 and V.42bis-V.44-Proprietary Standards-56Kbps Modems-56Kbps Limitations-Early 56Kbps Standards-V.90-ITU V.92 and V.44Breaking the Upload Barrier-Fax Modem Standards-Dialup Modem Recommendations-Choosing to Upgrade-Modems Without a UART (WinModems-Finding Support for "Brand-X" Modems-Telco "Upgrades" and Your Modem-Sharing Your Internet Connection-Comparing Gateways, Proxy Servers, and Routers-Routers for Internet Sharing-Internet Troubleshooting-Check Your Host Configuration-Check Your Client Configuration-Diagnosing Connection Problems with Signal Lights-Modem Fails to Dial-Computer Can't Detect External Modem-Using Your Modem Sound to Diagnose Your Modem

Unit-IV

Defining a Network-Types of Networks-Requirements for a Network-About Wireless Networking-Client/Server Versus Peer Networks-Client/Server Networks-Peer-to-Peer Network-Network Architecture Overview-Wired Ethernet-Fast Ethernet-Gigabit Ethernet-Wireless Ethernet-Wi-FiA Standard Upon a SpeedStandard-IEEE 802.11b11Mbps Wi-Fi-Bluetooth-Network Interface CardsWired Network Adapter Connectors-Network Cables for Wired Ethernet-Twisted-Pair Cable-Building Your Own Twisted-Pair Cables-Twisted Pair Wiring Standards-Crossover UTP Cables-Constructing the Cable

Unit-V

Network Topologies-Bus Topology-Ring Topology-Star Topology-Wireless Network Logical Topologies-Hubs and Switches for Ethernet Networks-How Switches Differ from Hubs-Hub and Switch Placement-More on Wireless Ethernet HardwareSecurity and Other Features-Notebook Computers with Integrated Wi-Fi Adapters-Network Protocols-IP and TCP/IP-TCP/IPLAN and Dialup Networks-IPX-NetBEUI-Other Home Networking Solutions-HomePNA Topology-Powerline Networking-Putting Your Network Together-Cables and Connections Between Computers-Hub/Switch/Access Point-Gateways for Non-Ethernet Networks-Configuring Your Network Software-Tips and Tricks-installation-Sharing Resources-Sharing Internet Connections-Direct Cable Connections-Troubleshooting a Network-Network Software Setup-Networks in Use-TCP/IP , Problem, Solution

TEXT-BOOKS

- 1.**Upgrading and Repairing PC's**, 17th Edition By 'Scott Mueller' ;Publisher: Que ;Pub Date: March 24, 2006 ; Print ISBN-10: 0-7897-3404-4
- 2.**Govinda Rajulu B, "PC IBM and Clones – Hardware, Troubleshooting and Maintenance"**, Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991
- 3.**Hardware bible** By : Winn L Rosch, Techmedia publications
- 4.**Trouble shooting, maintaining and repairing PCs** By :Stephon J Bigelow Tata McGraw Hill Publication
- 5.**Modern All about printers** By: Manohar Lotia, Pradeep Nair, Bijal Lotia BPB publications.
6. **The complete PC upgrade and maintenance guide** By:Mark Minasi, BPB Publications.

CORE LAB- 3: FUNDAMENTALS OF MICROPROCESSOR

1. Addition – 8 bit, 16 bit
2. Subtraction – 8 bit, 16 bit
3. Multiplication
4. Array addition (multibyte)
5. Logical operators – AND, OR NOT
6. Decimal to ASCII and ASCII to Decimal.
7. Decimal to Hexa and Hexa to Decimal.
8. Ascending Order
9. Descending Order
10. Up/down Counter
11. Block data transfer
12. Rotating display – Flashing display
13. Interfacing with LED's.
14. Square wave Generators
15. Interfacing with ADC.
16. Interfacing with DAC.

ALLIED-4 MANAGEMENT INFORMATION SYSTEMS

UNIT-I:

Introduction to MIS: MIS concept – Definition – Role of MIS – Impact of MIS – MIS and the User – Management as a Control system – MIS: a support to Management - Management Effectiveness and MIS – Organization as a system – MIS: organization effectiveness.

E-business enterprise: Introduction – Organization of Business in an E-enterprise – E-business – E-commerce – E-communication – E-collaboration.

UNIT-II:

Strategic Management of Business: The concept of corporate planning – Essentiality of Strategic Planning – Development of Business Strategies – Types of Strategies – Short-range Planning – Tools of Planning – Strategic Analysis of Business.

Information Security Challenges in E-Business: Introduction – Security Threats and Vulnerability – Controlling Security Threat and Vulnerability – Management Security Threats and Vulnerability – Disaster Management – MIS and Security Challenges.

UNIT-III:

Decision Making: Decision-making concepts – Decision-making process – Decision Analysis by Analytical Modeling – Behavioural Concepts in Decision-making – Organizational Decision-making – MIS and Decision-making. **Information and Knowledge:** Information Concepts – Information: a quality product – Classification of Information – Methods of data and Information Collection – Value of Information – General Model of a Human as an Information Processor.

UNIT-IV:

Applications in Manufacturing Sector: Personnel, Financial, Production, Raw

Material and Marketing Managements. **Applications in Service Sector:** Service management System – MIS Application in Service Industry – MIS: Service Industry

UNIT-V:

Enterprise Management Systems: Enterprise Management Systems – ERP system – ERP Model and Modules – Benefits of ERP – ERP Product Evaluation – ERP Implementation. Technology of Information Systems: Introduction – Data Processing – Transaction Processing –Application Processing – Information System processing.

TEXT BOOKS:

1. **MANAGEMNET INFORMATION SYSTEMS Text and Cases – Waman S Jawadekar,**

3rd ed, PHI. (UNIT-I: 1.1-1.10, 2.1-2.6 UNIT-II: 3.1-3.7,4.1-4.6 UNIT III: 6.1-6.6,7.7-7.6 UNIT-IV: 12.2-12.6,13.6-13.8 UNIT-V: 15.1-15.6,16.1-16.6)

2. **MANAGEMNET INFORMATION SYSTEMS managing the Digital Firm – Kenneth C.Laudon & Jane P. Laudon,** 9th edition, PHI.

3. **MANAGEMNET INFORMATION SYSTEMS for the Information Age – Haag, Cummings, McCubbrey,** 4th edition, TMH.

4. **MANAGEMNET INFORMATION SYSTEMS a Concise Study – S.A. Kelkar,** 2005,PHI.

SKILL BASED SUBJECT LAB-1: DIGITAL ELECTRONICS LAB

LAB EXPERIMENTS

1. **Familiarization of Logic Gates :** To familiarize the different logic gate IC chips and verification of their truth table 7400, 7402, 7404, 7408, 7432, 7486

2. **Study of Universal Gates :** To implement the basic logic gate AND, OR, NOT, etc gates.

3. **Adders :** To implement the Half adder and Full -Adder

4. **Subtractors ;** To implement the half subtractor & full subtractor

5. **Comparators :** To implement 4 bit magnitude comparator 7485.

6. **Decoders :**To implement 2 -4 decoder

7. **Seven Segment Displays :**To familiarize the BCD 70 decimal Decoder IC7442, BCD to Seven Segment Decoder 7448, Seven Segment Display LT 542, BCD to Binary 74154 and Decimal to Binary priority and 74147.

8. **Encoder :** To implement 4-2 encoder

9. **Multiplexers :** To implement a 4:1 multiplexer, 8:1 Multiplexer 74151

10. **De-multiplexers :** 1:4 De-multiplexer circuits.

11. **Latches :** To familiarize SR-Latch, D-Latch

12. **Flip- Flop :** To implement JK Flip-Flop and SR Flip Flop using Discrete Gates.

Text book:

1. *T.D. Kuryachan & Shyam Mohan S, "Electronics Lab Manual, Vol.I", Ayodhya publications.*

SEMESTER-V

CORE 9: PC DIAGNOSTICS & TROUBLESHOOTING

Unit-I

Considering the Importance of the Power Supply-Primary Function and Operation-Positive DC Voltages-Negative DC Voltages-Power Supply Form Factors-Power Switches-Motherboard Power Connectors-Peripheral Power Connectors-Floppy Power Connectors

Unit-II

Power Supply Specifications-Power Factor Correction-Power Supply Safety Certifications-Power-Use Calculations-Power Cycling-Power Management-Power Supply Troubleshooting-Repairing the Power Supply-Sources for Replacement Power Supplies-Power-Protection Systems-RTC/NVRAM (CMOS RAM) Batteries-CMOS Battery Troubleshooting

Unit-III

System Components-BIOS-Memory-I/O Ports-Removable Storage-Input Devices-Audio Hardware-Heatsinks/Cooling Fans-Hardware and Software Resources-System Assembly and Disassembly-Motherboard Installation-Installing Memory Mod Unit-IConsidering the Importance of the Power Supply-Primary Function and Operation-Positive DC Voltages-Negative DC Voltages-Power Supply Form Factors-Power Switches-Motherboard Power Connectors-Peripheral Power Connectors-Floppy Power Connectors

Unit-IV

Over clocking and Cooling-Modern PC Clocks-Cooling-Heatsinks-Liquid Cooling-Water Cooling

Unit-V

PC Diagnostics-Diagnostics Software-The Power On Self Test-Peripheral Diagnostics-Operating System Diagnostics-The Hardware Boot Process-Windows NT/2000/XP Startup-PC Maintenance Tools-Test Equipment-Logic Probes and Logic Pulsers-Preventive Maintenance-System Backups-Cleaning a System-Cleaning Connectors and Contacts-Virus and Spyware Checking-Passive Preventive Maintenance Procedures-Troubleshooting Tips and Techniques-Industry-Standard Replaceable Components-Troubleshooting by Replacing Parts-Problems During the POST-Hardware Problems After Booting-Top Troubleshooting Problems

TEXT-BOOKS

1. **Upgrading and Repairing PC's**, 17th Edition By 'Scott Mueller' ;Publisher: Que ;Pub Date: March 24, 2006 ; Print ISBN-10: 0-7897-3404-4
2. **Govinda Rajulu B**, "PC IBM and Clones – Hardware, Troubleshooting and Maintenance", Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991
3. **Hardware bible** By : Winn L Rosch, Techmedia publications
4. **Trouble shooting, maintaining and repairing PCs** By :Stephon J Bigelow Tata McGraw Hill Publication
5. **Modern All about printers** By: Manohar Lotia, Pradeep Nair, Bijal Lotia BPB publications.
6. **The complete PC upgrade and maintenance guide** By:Mark Minasi, BPB Publications

CORE-10 : SOFTWARE TESTING

UNIT-I:

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. **White-Box Testing:** Static Testing – Structural Testing – Challenges in White-Box Testing.

UNIT-II:

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - **Integration Testing:** Integration Testing as Type of Testing – Integration Testing as a Phase for Testing – Scenario Testing – Defect Bash.

UNIT-III:

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT-IV:

Performance Testing: Factors governing Performance Testing – Methodology of performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. **Regression Testing:** What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT-V:

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting – Best Practices. **Test Metrics and Measurements:** Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXTBOOKS:

1. **SOFTWARE TESTING Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh**, 2006, Pearson Education.
(UNIT-I: 2.1-2.5, 3.1-3.4 UNIT-II: 4.1-4.4, 5.1-5.5 UNIT III: 6.1-6.7
(UNIT IV: 7.1-7.6, 8.1-8.5 UNIT-V: 15.1-15.6, 17.4-17.7)
2. **EFFECTIVE METHODS OF SOFTWARE TESTING–William E.Perry**,
3rd ed, Wiley India.
3. **SOFTWARE TESTING – Renu Rajani, Pradeep Oak**, 2007, TMH

Core-11 : MULTIMEDIA

UNIT-I:

Introduction: Multimedia Presentation and Production – Characteristics of Multimedia Presentation – Multiple Media- Utilities of Multi-sensory Perception – Hardware and Software Requirements.

Digital Representation: Analog Representation – Waves – Digital Representation – Need for Digital Representation – Analog to Digital Conversion – Digital to Analog Conversion.

Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats.

UNIT-II:

Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images –CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

UNIT-III:

Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission –Audio File formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response - Audio Processing Software.

UNIT-IV:

Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – Digital Video – Digital Video Standards – PC Video – Video Recording Formats and Systems - Video File Formats and CODECs – Video Editing – Video Editing Software.

UNIT-V:

Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. **Compression:** MPEG-1 Audio – MPEG-1 Video -MPEG-2Audio – MPEG-2 Video.

TEXTBOOKS:

1. **PRINCIPLES OF MULTIMEDIA – Ranjan Parekh, 2007, TMH.**

(UNIT I: 1.1-1.6, 2.1-2.7, 4.1-4.7 UNIT-II: 5.1-5.16 UNIT-III: 7.1-7.4, 7.8-7.14, 7.18-7.20, 7.22, 7.24, 7.26-28 UNIT-IV: 8.1-8.12 UNIT-V: 9.5-9.10, 9.13, 9.15, 10.10-10.13)

2. **MULTIMEDIA: Making it Work – Tay Vaughan, 7th edition, TMH.**

3. **Comdex MULTIMEDIA AND WEB DESIGN – Vikas Gupta, DreamTech press.2007.**

CORE-LAB 4: COMPUTER HARDWARE MAINTENANCE

1. Install an Operating System – Windows XP
2. Install an Operation System – Windows 98
3. Install an Operation System – Windows 2000
4. Repairing OS
5. Configuration Antivirus & Firewalls
6. Enabling Disk quota
7. Customize the Windows Desktop
8. Image and Replace a Windows 98 Hard Drive
9. Install and Launch Windows Applications
10. Install a CD-and DVD

11. Install a CD-ROM Drive – Windows
12. Install a Sound Card – Windows
13. Install a printer & Creating Network Printer
14. System restoration
15. Fixing SMPS & its Complains
16. Use scan disk and defrag -Windows
17. Create an ERD and Startup Disk – Windows 2000
18. Configure and Connect Dial-Up Networking
19. Expansion Bus Cables
20. Adding MODEM & Internet
21. Configure a Peer-to-Peer Network
22. Driver Signing
23. Troubleshoot Software
24. Scanner installation
25. Remote Desktop

CORE LAB 5: MULTIMEDIA

PRACRICAL LIST

1. Create Sun Flower using Photoshop.
2. Create Water Drops using Photoshop.
3. Animate Plane Flying the Clouds using Photoshop.
4. Create Plastic Surgery for Nose using Photoshop.
5. Create Mouse using Photoshop.
6. Create See thru text using Photoshop.
7. Create Military Clothe using Photoshop.
8. Create Stone Texture using Photoshop.
9. Create Rollover Buttons using Photoshop.
10. Create Realistic Stone Structure using Photoshop.
11. Create Web Page using Photoshop.
12. Convert Black and White to Color Photo using Photoshop.

SKILL BASED SUBJECT-2 : WEB TECHNOLOGY

UNIT-I:

TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example- The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP –Ports and Sockets – Active Open and Passive Open - TCP Connections – What makes TCPreliable? – TCP Packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

UNIT-II

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing -Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

UNIT-III:

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier –Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins –Frames – Forms.Dynamic Web Pages:Need – Magic of Dynamic Web Pages – Overview of dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP– ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets –Java Server Pages.

UNIT-IV:

Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.

UNIT-V:

XML: SGML – Basics of XML – XML Parsers – Need for a standard.WAP:Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack –Concerns about WAP and its future – Alternatives to WAP.

TEXT BOOKS:

1. WEB TECHNOLOGIES TCP/IP to Internet Applications Architectures – Achyut S Godbole & Atul Kahate, 2007 ,TMH.

(UNIT-I: 3.1-3.5,4.1-4.12 UNIT-II: 5.1-5.4,6.1-6.7 UNIT III:8.1-8.1,9.1-9.13

UNIT IV: 10.1-10.7,15.1-15.3,16.1-16.8 UNIT-V: 17.1-17.4,18.1-18.6)

2. INTERNET AND WEB TECHNOLOGIES – Rajkamal, TMH.

3. TCP/IP PROTOCOL SUITE – Behrouz A. Forouzan, 3rd edition, TMH.

SEMESTER-VI**CORE 12 : SERVER ADMINISTRATION****Unit-I**

Introducing Windows Server 2003 -Windows Server 2003 Editions- Standard Edition- Enterprise Edition- Datacenter Edition -Web Edition- Brand New in Windows Server 2003- New Remote Administration Tools -New Active Directory Features -Availability and Reliability Improvements-Resultant Set of Policies

Unit-II

Installation . Hardware Requirements . . Hardware Compatibility List . Symmetric Multiprocessing Hardware . Clustering Hardware . Plug and Play Support -ACPI Issues -Developing a Deployment Plan -Document the Hardware Document the Network- Document the Software Document the Legacy Components- Prepare for Problems -Complete the Preinstallation Tasks .-Understanding Installation Models -Winnt.exe vs. Winnt32.exe -Installing from CD-Bootting to the Windows Server 2003 CD . . Running Setup.exe from CD -Installing from an MS-DOS Boot Disk .-Using Network

Sharepoints Using Logon Scripts and Batch Files . Automated Installations-Choosing an Automated Installation Type-Unattended Installation-SYSPREP .

Unit-III

System Basics for Servers . Manage Your Server . Configure Your Server Wizards
Removing Server Roles Configure Your Server Log . Set Up Server Roles Manually .
Remote Desktop -Enable Remote Desktop on the Server -Client Remote Connection
Software . Starting a Remote Desktop Session- Running a Remote Desktop Session -Leaving
a Remote Desktop Session- Managing the Connections from the Server -Joining the Console
Session-Using a Snap-in for Remote Desktop . - Changes in IIS -Use Web Edition for IIS .
Installing IIS -Set Compatibility Options Manually

Unit-IV

The Windows Server 2003 Registry . Overview of the Registry . Registry structure . Hives
and Hive Files . . Registry Data Items . HKEY_CLASSES_ROOT .
HKEY_CURRENT_USER . Regedit.exe . Prevent Regedit from Displaying the Last
Accessed Key . Accessing Remote Registries . Searching the Registry- Creating Favorites -
Tweak and Troubleshoot with the Registry . Exporting Keys -Adding Items to the Registry -
Registry Security -Auditing the Registry . Reg.exe . General Guidelines for Reg.exe .

Unit-V

Bootling Hardware Bootup . -Memory Errors . . Drive Errors . SCSI Errors . . Operating
System Boot . . MBR Code Executes . Windows Server 2003 Startup Files Execute . . Boot
Selection Menu Displays . . Ntdetect Launches . Ntoskrnl Runs and HAL Is Loaded Drivers
and Services Load -Operating System Loads -The computer Logs On Logon Services Load .
About Boot.ini . . Enable Boot Logging . Enable VGA Mode . Last Known Good
Configuration . Directory Services Restore Mode Debugging Mode-Server 2003 Computer

Text-Books

1) Windows® Server 2003:The Complete Reference: By Kathy Ivens with Rich Benack,
Christian Branson, John Green, David Heinz, Tim Kelly, John Linkous, Christopher
McKetrick, Patrick J. Santry, Mitch Tulloch; Publications McGraw-Hill/Osborne

CORE LAB: SERVER ADMINISTRATION LAB

1. identify the functions needed for a network environment.
(subtasks: subtasks: understand reasons for Windows server 2003, understand
components of Windows server 2003)
2. decide whether to migrate to Windows server 2003.
(subtasks: subtasks : evaluate the size, hardware/software, networking environment,
security demand of the organization to decide whether to migrate.
3. complete an installation checklist
(subtasks: check system requirements, consider installation choices, prepare for
installation, plan migration to Windows server 2003)
4. install Windows server 2003
(subtasks: choose setup method, run setup, configure the server)
5. install WINDOWS XP PROFESSIONAL
(subtasks: clean install from new version, character based setup, GUI based setup, run
upgrade, automate installation, create/use images)

6. install, configure, test trouble shoot RIS
 7. plan network
(subtasks: define network, hardware, topologies, implement protocols)
 8. ensure that the network is properly set up
(subtasks: set up network interface card, configure protocols, test network, setup DHCP, DNS and WINS, group permissions, user accounts)
 9. implement Active Directory
(subtasks: install AD, replicate Ad among sites)
 10. use communication among the computers
(subtasks: LAN) and connect to internet (subtasks: connect PCs with LAN, telephony connections, install/maintain Windows server 2003 router, internet connection, send/receive internet mail)
 11. use IIS 6
(subtasks: install IIS 6, customize/maintain IIS 6)
 12. install VPN
(subtasks: use PPTP, layer two tunneling protocol, setup VPN server/client)
 13. use terminal services and Remote Desktop
(subtasks: setup terminal service, activate/install client licenses, use remote desktop for administration)
 14. plan and use storage and file systems
(subtasks: Use disk management, dynamic volume management, distributed file system, distributed file system, backup/restore)
 15. set up print and fax services
(subtasks: set up network printing, control que, manage fonts, set up fax service)
 16. use control panel, task manager, MMC, registry, group policy, local user profiles and update Windows server 2003
 17. plan and use security features (subtasks: authenticate users, control access, secure server data, private/public key encryption, secure data transmission)
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CORE-13: NETWORK SECURITY & CRYPTOGRAPHY

UNIT-I:

Service mechanism and attacks – The OSI security architecture – A model for network security – symmetric Cipher model – Substitution techniques – transposition techniques – simplified des – block chipper principles – the strength of des – block chipper design principles and modes of operation.

UNIT-II:

Triple des-blow fish – RCS Advanced Symmetric Block Ciphers –RC4 stream Cipher confidentially using symmetric encryption – introduction to number theory – public – key cryptography and RSA.

UNIT-III:

Key management – Diffle Hellman key exchange – message authentication and hash function – hash algorithm – digital signature and authentication protocols – digital signature standard.

UNIT-IV:

Authentication application – pretty good privacy – S/MIME – ip security – web security considerations –secure socket layer transport layer security –secure electronic transaction.

UNIT-V

Intruders –intrusion detection – password management –viruses and related threats –virus countermeasures – fire wall design principles – trusted systems

TEXT BOOK:

1. William Stallings, “Cryptography and Network Security Principles and Practices”. Fourth edition, phi Education Asia.
2. Atul kahate “Cryptography and Network Security” second edition. TMH.
3. Behrouz A.forouzan” Cryptography and Network Security “ TMH.

SKILL BASED SUBJECT LAB-2: WEB TECHNOLOGY LAB

1. Design a personal web page using HTML.
2. Design a data entry form in HTML.
3. Write a Program in ASP to get data using a form, validate the data and returns the same data for correction if any using the same form.
4. Write a program in ASP to display the Session properties.
5. Write a program in ASP that makes use of Ad Rotator component.
6. Write a program in ASP that makes use of Browser Capabilities component.
7. Write a program in ASP that makes use of Content Rotator component.
8. Write a program in ASP that makes use of page counter component.
9. Write a program in ASP to get the data of students using forms and stores them in database.
10. Write a program in ASP to perform record navigation using a form.