

Maharishi Mahesh Yogi Vedic Vishwavidyalaya

DIRECTORATE OF DISTANCE EDUCATION

Syllabus

**Diploma in Computer Hardware and Networking
(DHN)**

w. e. f. July 2012

DHN SEMESTER – I

S. No.	Paper Code	Paper No.	Paper Name	Marks
1.	1DDHN1	I	Fundamentals of Maharishi Vedic Science (Maharishi Vedic Science – I)	100
2.	1 DDHN 2	II	Fundamentals of Computer and Information Technology	100
3.	1 DDHN 3	III	PC Packages	100
4.	1 DDHN 4	IV	Computer Hardware	100
5.	1 DDHN 5	V	Digital Electronics and Microprocessors	100
6.	1 DDHN 6	VI	Practical – 1DDHN3 , 1DDHN4 and 1DDHN5	100

DHN SEMESTER – II

S. No.	Paper Code	Paper No.	Paper Name	Marks
1.	2 DDHN 1	I	Advanced Concept of Maharishi Vedic Science (Maharishi Vedic Science – II)	100
2.	2 DDHN 2	II	Computer Assembling and Testing	100
3.	2 DDHN 3	III	Computer Hardware Maintenance & Mobile Repairing	100
4.	2 DDHN 4	IV	Computer Networking and Linux/Unix	100
5.	2 DDHN 5	V	Wireless Networking and Security Essentials	100
6.	2 DDHN 6	VI	Practical – 2DDHN3, 2DDHN4 and 2DDHN5	100
7.	2 DDHN 7	VII	Project	100

FUNDAMENTALS OF MAHARISHI VEDIC SCIENCE

(MAHARISHI VEDIC SCIENCE – I)

UNIT-1

Meaning & importance of Guru Pujan.

Meaning of meditation, Mann, Intelligence, Chita, Ego, Thought .

UNIT-II

Name of forty areas of Vedic Science and their expression in Human Physiology and characteristics of consciousness.

Consciousness, types of consciousness, characteristics of higher stages of consciousness.

UNIT-III

Maharishi's Yoga, Transcendental Meditation- a general Introduction, Types of Speech, TM Sidhi Programme, Principle of Yoga Asanas and their Concept.

UNIT-IV

Introduction: Maharishi Vedic Management.

Fundamental elements of Vedic Management –Totality

Management of Science and Art .

UNIT-V

Vedic Management and Leadership.

The Idea Leadership is based upon the Totality of Employee's Style

Suggested Readings:

- Chetna –His Holiness Maharishi Mahesh Yogijee
- Maharishi Sandesh -1 and 2 , II-His Holiness Maharishi Mahesh Yogijee
- Scientific Yoga Ashanas –Dr.Satpal.
- Dhyani Shailly by Brahmchari Dr. Girish Ji

FUNDAMENTALS OF COMPUTER AND INFORMATION TECHNOLOGY

UNIT-1

Introduction to computer and information technology : History of development of computers, computer system concept , characteristics, capabilities and limitation , types of computer – analog, digital, hybrid, general, special purpose, micro, mainframe, super, generation of computer, personal computer (PCs) –IBM PCs, characteristics, PC/PCXT/PCAT-configurations, Pentium and Newer PCs specification and main characteristics, types of PCs-Desktop, Laptop, Notebook, Palmtop, Workstation etc , their characteristics.

Computer Organizations and Working: Basic component of a computer system –control unit, ALU, INPUT /Output function and characteristics, memory –RAM, ROM, EPROM, PROM and other types of memory.

UNIT-II

Input Devices: Keyboard, Mouse, Trackball, Joysticks, Digitizing tablet, Scanner, Digital Camera, MICR, OCR, OMR, BAR-CODE Reader, Voice Recognition, Light Pen, and Touch Screen.

Output Devices: Monitor –characteristics and types of monitor –digital, analog size, resolution, refresh rate, Interlaced /Non Interlaced, Dot Pitch, Video Standard –VGA,SVGA,XGA etc, Printer –Daisy wheel, Dot Matrix, Inkjet, Laser, line printer , plotter, sound card and speakers.

UNIT-III

Storage Devices: Storage Fundamental –Primary VS Secondary, Data Storage and Retrieval method –Sequential, Direct and Index Sequential, Various Storage Devices –Magnetic Tape ,Magnetic disks, Cartridge Tape, data drives, hard disk drives, floppy (Winchester disks), Disks, Optical Disks, CD,VCD,CD-R,CD-RW, ZIP Drive.

Computer Software: Need, types of software –system software, application software, system software-operating system, utility program, programming Language, assemblers, compiler and interpreter.

UNIT-IV

Operating System: Function, types –Batch, Single, Multiprogramming, Multiprocessing. Programming languages- Machine, Assembly, High Level and 4GL. Merit and Demerits of Programming Languages.

Disk Operating System (Dos) Introduction History & version of Dos basic –physics structure of disk drive name , Fat ,File & directory structure and naming rules , booting process , Dos system files. Dos command: Internal –DIR , MD , CD, RD, COPY, DEL, REN , VOL, DATE, TIME, CLS, PATH, TYPE etc. External – CHKDSK, XCOPY, PRINT, DISKCOPY, DISKCOMP, DOSKEY, TREE, MOVE, LABEL, APPEND, FORMAT, SORT, FDISK, BACKUP, EDIT, MODE, ATTRIB , HELP, SYS ,etc Executable V/s Non executable file in Dos.

Number System: Data representation in computer, number system of computer –Binary, Octal, Hexa-Representation & their conversion, coding system –ASCII, BCD, EBCDIC etc.

UNIT-V

Data Communication and Networks: communication channels –twister, coaxial, fiber, optic. Types of Networks –LAN, WAN, MAN etc, Topologies of LAN –Ring, BUS, STAR, MESH and TREE topologies , components of LAN-media , NIC, NOS, Bridges, HUB, Routers Repeater and Gateway .

Computer virus: Virus working principles, types of viruses, virus detection and prevention, viruses on networks. Use of communication and IT in daily life.

An Introduction : Modern Science and Vedic Science, Unified Field based Computer Science.

Text & Reference Books:-

1. Learning Window 98 step by step by Rajeev Mathur , BPB Publication.
2. Learning Word 97 for Window by Rajeev Mathur , BPB Publication,
3. Learning Excel 97 for Window by Rajeev Mathur , BPB Publication.
4. A First Course in Computer by Sanjay Saxena , Vikas Publishing House New Delhi.
5. Microsoft Office 2000 by A. Mansoor by Pragya Publications.
6. Office 97 Interactive Course by Greg Perry, Tec media.
7. Microsoft Office 2000 by A. Mansoor by Pragya Publications.

PC PACKAGES

UNIT-I

Word-processing : MS-Word : Introduction to word processing, introduction to MS –Word: features, creating ,saving and opening document in word , interface , Toolbars , Ruler, Menus, Keyboard Shortcut, Editing a document – moving, scrolling in a document, opening multi document window, editing text selecting , inserting, delete , moving text, previewing document, printing document – Print a document from the standard toolbars, print a document from the menu , shrinking a document to fit a page, reduce the number of pages by one, formatting document: paragraph format, Aligning text and Paragraph, Border and shading, header and footer, multiple columns.

UNIT-II

Word-processing: Advanced Feature of MS Word: Find and replace, checking the grammar and spelling, formatting via find and replace, using the thesaurus, using Auto correct, Auto complete and Auto Text, Word count, Hyphenating, Mail merge, mailing labels Wizard and Templates, handling graphic, tables insert and modification, converting of tables, converting a word document into various formats like – Text, Rich Text Format, Word Perfect, HTML etc.

UNIT-III

Worksheet : MS-Excel : Worksheet basics, Creating worksheet, entering data into worksheet, heading information, data, text dates, alphanumeric, values, saving & quitting worksheet, opening and moving around in an existing worksheet, toolbars and menus , keyboard shortcut , working with single and multiple worksheet , coping, renaming, moving between work books, working with formulas & cell referencing – Auto sum, Coping formulas, absolute & relative addressing, working with range – creating editing and selecting range, formatting of worksheet – Auto format, changing –alignment, character styles, column width, date format , border & colors, currency sign.

UNIT-IV

Worksheet : MS-Excel: Previewing & Printing Worksheet- Page setting , print titles ,Adjusting margins, page break , headers and footer, graphs and chart – using wizard, various chart types, formatting grid lines & legends , previewing & printing charts , database – creation , sorting, query & filtering a database , function – database , date and times, maths & Trigonometry, statistical, Text and logical function, creating and using macros, multiple worksheet – concept, creating and using.

UNIT-V

MS PowerPoint: Introduction and area of use, working with MS PowerPoint, creating a new presentation working with presentation, using wizards, slides & different views, deleting copying slides, working with notes, handout, columns and list, adding graphics, sound and movies to a slide, working with power point objects designing and presentation of a slide show, printing and presentation, notes, Handouts with print options.

Outlook Express: Setup E-mail account with outlook, sending and receiving mail through outlook, concepts of CC, BCC, forwarding mail, draft message, formatting E-mail message, Concept of MIME protocol, attaching files and items into messages, inserting hyperlink using outlook editor and using send and receive group mails, opening received message, opening message with attachment, replying to mail forward message flagging for further action, setting email options, managing contacts with outlook, setting up multiple email accounts on single machine.

Reference Books:

- Window XP Complete Reference , BPB Publication
- MS Office XP Complete BPB Publication
- IT Tools and Applications Pragma Publications

COMPUTER HARDWARE

Unit-I: Keyboard and Mouse: Types of keyboard function of each key, Topic of key and their construction , key matrix , key identification , some terms keyboard controller chips, keyboard installation and trouble shooting , Types of mouse , and their construction , working of mouse , Mouse interfacing chips, Mouse installing and trouble shooting .

Unit-II: Floppy Disk Drives: - Drive components, drive types, data encoding, physical working of drive controller, logical working of FDD, Removing / adding a drive. Drive servicing and maintenance, Disk utilities, Floppy drive testing and alignment (Bigelow).

Unit-III: Memory: - Basic Concept – Binary Cell, Semiconductor memory . Types of Memory –RAM and ROM in detail Memory Chip : Rom and ROM , PROM , EPROM , EEPROM etc, Memory Modules and packaging, Logical and Physical organization of memory in computer . Cache Memory –LX and LZ, EDO. Various terms used in computer memory .

Unit-IV: CD_ROM, CD-R And DVD Drivers: - Understanding CD Media ,CD –ROM /CD-R standard and Characteristic , Drive communication , understanding the software , creating a bootable CD, Troubleshooting CD-ROM and CD-R drives . Specification and standard , DVD media ,DVD drives , the MPEG-2 decoder board , basic DVD/MPEG-2.

Unit –V: Basic of printer and Scanner :- Printer : Impact and Non Impact , printing mechanism , working of DOT matrix , Daisy wheel , line, Drum , Chain, Band , Laser , Inkjet printers , Font / types Faces Trouble Shooting printer . Scanner: Scanning mechanism, working of hand held and flatbed Scanner.

Text Books:-

- 1) Modern all about keyboard and mouse by: Maher Lotia, BPB Publication
- 2) Modern all about Floppy Disk and Drives by: Manahan Loti and Pradeep Nair BPB publication

Reference Books:

- 1) The complete PC upgrade and maintenance guide by: Mark Minasi BPB publication.

DIGITAL ELECTRONICS AND MICROPROCESSORS

Unit-I: - Resistors: Types of resistor, color code, parallel and series connection, basic uses. Capacitors: Types of capacitors, color code, parallel and series connection, basic uses. Inductor: Concept of a coil – inductance, making of an inductor, basic uses. Transformer: Concept types and uses. Semiconductor: structure of atom, vacancy, conductor, semiconductor or insulator, Intrinsic semiconductor, doping, P and N type of semiconductors. Diodes: P-N Junction, Zener Transistor: BJT, FET, MOSFET, working and characteristics. Integrated circuits: Basic concepts.

Unit-II:- Definition of current and voltage , KCI and KVI (Kirckoff's current law and Kirchhoff's voltage law).Ohm's law , R-L , R-C and R-L-C circuit , number system –Binary – Octal –Hexa , basic logic gate –AND –OR –NOT-XOR, NOR ,NAND , Flip flop : R-S D and JK .shift register ,counter encoder and decoder , few Boolean function and simplification.

Unit-III: - Current meter, Voltage meter, Millimeter, Oscilloscope, Function generator, soldering iron, PCB, disordering pump. Introduction –Role- building Block –Buses –speed and performance –Instruction set –CPU chip – fabrication –packaging –processor socket –processor power-chip characteristics processor cooling –CPU upgrade –CPU over locking.

Unit-IV:- Processor Generation –First –second –Third –fourth –fifth Pentium –AMD k5 – Cyrix –sixth Generation –Pentium pro –PII –Celeron –P-III-P-IV-AMD K6 (K6-2,K6-3) –AMD Athlon K7-Athlon K75 –AMD Duron- Athlon XP-Cyrix MII-VIA Cyrix III –AMD Opteron– Pentium II Xeon –Pentium III Xeon –Athlon MP –Selection of CPU-Troubleshooting .

Unit-V:- System Buses –Introduction -8 bit ISA, Bus -16 bit ISA bus –MCA Bus –EISA Bus – local Bus –VESA local Bus –PCI bus –expansion buses –troubleshooting .Advanced Chipset-introduction –Evolution –Function I/O Controller –Bridges –Pentium Chipsets –Non Intel Chipset –Pentium II and Pentium Pro chipset -810-SiS and Ali-820-820E-815E-AMD 750 and 760 -850E-845E-845GL-845GL-VIA chipset , Server class chipset Comparison –chipset selection .

MAHARISHI VEDIC SCIENCE - II

UNIT – I

Classical and Scientific introduction about forty areas of Vedic Science.

UNIT – II

Third Law of Thermodynamics.

Miessener's effect.

Maharish's Effect-Society, Environment, Behavior and effect on moral value.

UNIT – III

Pradhavansabhav, Atantabhav, Annyonabhav, Pragbhav.

Meaning of "Yogastha Kuru Karmani"

Meaning of "Gyanam Chetanayam Nihitam"

UNIT – IV

Theory of Karma-Prarabadha, Kriyamana, Sanchieta.

Theory of Invincibility .

Introduction to Maharishi absolute theory of Government.

UNIT – V

Theory of Ayurved.

Theory of Dincharya & Ritucharya.

Text and Reference Books :-

Maharishi Sandesh Part – I, II

Chetna Vigyan- His Holiness Maharishi Mahesh Yogi Ji.

Dhyan Shailly by Brahmchari Dr. Girish Ji

COMPUTER ASSEMBLING AND TESTING

Unit-I:- PC upgrading –Introduction –upgrade Essentials –performance upgrades –capacity upgrade – feature upgrade –repair Upgrade . Preventive Maintenance –Introduction need –Tools –Material – Procedures –Active hardware Maintenance – active software maintenance –passive Maintenance Procedures –Heat and Temperature control –Dust and pollution control –Ventilation Control –EMI Electrostatic Discharge Control –Humidity and Corrosion Control –Shock and Vibration Control- Prevention maintenance Schedule.

Unit-II:- Computer Assembling –Introduction –Overview of part of a PC – Cabinet – Motherboard – Video Card – Sound card –Modem –hard Drive –Zip drive CD-Rom Drive –Network Card –Interface. CPU-Main Memory –Power Supply , Setting up the Motherboard –Installing CPU –Setting the Clock speed installing the memory , Installing video card –testing –plug in the video card –providing power to the Motherboard –Testing Installing Floppy Drives –Installing Hard disk –Drives –installing the CD ROM Drive –Installing Key Board and Mouse .

Unit-III: - Installing sound Card –Installing Modem . Installing the Motherboard – Installing the power Supply –Attaching ,Add – on Cards –Installing the drives –Testing –parallel and serial port connector front panel Indicators and speaker –Troubleshooting. Trouble shooting Introduction –Types of PC Faults –Solid Faults –Intermittent Faults –Developing Strategy , Diagnostic and Repair Tools Diagnostic Software Tools –Diagnostic Hardware Tools –Advanced Testing Tools –Hand Tools For Services Engineer –Disassembling PC . Perform the “Smoke Test”, Installing of the Software; Finishing Touches, BIOS /CMOS setup program; various setup Option .

Unit-IV: Operation system Installing –BIOS –Introduction –Features –Development –Identification – Interrupt Disk Services –serial port services –video services –print –screen services –flash Memory – BIOS Upgrade Troubleshooting . CMOS setup – Introduction –Standard CMOS setup –Advanced CMOS Setup –Advanced Chipset setup power Management setup –PNP/PCI setup –peripheral setup auto detect IDE device –CPU frequency / Voltage Control –CPU PNP setup –password setting –auto configuration – exit option –BIOS optimization Maintenance –Troubleshooting .Power On Self Test (POST)

Unit-V : Partitioning and formatting – Introduction –Low Level Formatting -IDE Drives –SCSI drives – Partitioning –option –Efficient partition –Cluster –FAT 16 –FAT 32 –NTFS –FDISK – setup for partitioning –logical drives . primary partition –Extended partition –Partitioning large Drives Backing up Partition Information –Bad Sector –scan disk –Third party Partitioning and formatting tools –Troubleshooting .

COMPUTER HARDWARE MAINTENANCE & MOBILE REPAIRING

Unit-I: Idea about faster microprocessor motherboard 80286, 80386, 80486 , Pentium , idea about dataflow , function of different chips in motherboard , dump and smart chip , identification of different card and adapter , pin configuration and detail of cables – RS 232- 25 pins, RS 232 C 9 pins , power cable testing . Maintenance flow chart , routine checks , DIP switch setting jumper setting installing new motherboard , rum problems , their diagnostics and preventing maintenance identification of bad sector.

Unit-II: Tools and components, start up problem, run problem, display problem circuit board repair, disassembly hint for PC –XT /AT . Circuit diagram and pin assignment, working of SMPS, input and load requirement connecting a PC and peripherals to power supply. Cautions about opening power supply, over voltage and over current protection, upgrading the power supply, various test for fault tolerance, problem of dissimilar earth and loose connection protecting the PC from AC.

Unit-III:- Introduction & Types of mobile phone Technology , concept of mobile phone , Introduction of GSM & CDMA mobile , basic information about technical terms –Conductor , Insulator , semi-conductor , Current , Voltage , resistance , multi-meter ,AC /DC , Ohms's law etc. Meaning of Register & Its type; meaning of capacitor & its Types; Meaning of Diodes & its type; Meaning of Transistors & its types; Meaning of Rectifier circuit & its types . SIM card: Function, Features and uses of SIM card, internal part & Accessories of Mobile Handset; Tools and Equipment required for repairing.

Unit-IV: Names of Different ICs: Uses of Blower (Smd) etc, Importance & Uses of Soldering tools : uses of Screw Driver set, Brush , Tweezers, etc, Use of BGA kits, jumper wire , Soldering wire , Blade , cutter , PCB stand etc, Use of Multi – Meter , Use of Battery Booster , use of Jhatka machine etc, Use of Magnifying Glass ; How to Check part , jumper , ICs etc by using magnifying Glass . Assembling & Disassembling / Dismantling of different Mobile handset Information about phone setting , Networks services , security setting , LCD setting etc, Feature & function of mobile phone –Call option, Formatting , phone books , secret codes , etc, Technical terms / Abbreviation / codes used in mobile phones .

Unit-V:- Introduction of ICs (Integrated Circuit): Different types of ICs and its working : Fault Finding & repairing of ICs , Basic part of mobile phone & their function ; important part & function of networks section important part & function of power station ; sound system; antenna etc. repairing & maintaining Mobile Battery, Circuit Diagrams of Mobile Phone safty and Precautions. Introduction to Mobile software- PC Suit software, Bluetooth, Infrared, Card Reader, UFX Box.

COMPUTER NETWORKING AND UNIX/LINUX

Unit-I:- Network Introduction :- Need , advanced , types –server based , peer , hybrid , server types , network topologies-bus, Star, Ring , Star Bus, Star Ring , Mesh ,Network Protocols –Hardware protocols , software protocols , selecting and design the network for an organization , signal transmission –Digital signaling , Analog signaling ,Bit Synchronization , Baseband and Broadband transmission Network media types , Properties and specialties , Comparative study.

Unit-II:- Theoretical and real world networks :- OSI and IEEE 802 model, Network Technology – Ethernet , working principle , 10 & 100 MBPS Ethernet , token ring, FDDI, ATM , Arc net . Network scaling –No of computer , distance , software , speed, special, requirement , network connectivity –Hubs, repeater , bridges , multiplexers , internet connectivity –Routers , Brouters ,gateways , CSUs/DSUs.

Unit-III:- Network Installation and Administration :- (using window NT/2000 /2003/latest version) various network operating system, Server Installation, Client installation , Configuration , Minimum network administration , Troubleshooting .

Unit-IV: - INTERNET CONNECTIVITY & UNIX: - Introduction to Internet . Basic internet services (E – mail, file transfer, telnet, chatting) , ISP, connectivity (dial up , Leased line , ISDN) , Internet Configuration . History of Unix Features, Advantages and Disadvantage, Hardware requirement file system and basic commands, installation and configuration of various devices . Installation and Configuration of networks in Unix.

Unit-V: - Linux History of Linux , features , Advantage and Disadvantages , Hardware requirement file system and basic command , installation and configuration of various devices . Installation and configuration of network in Linux. Building LAN with Linux and Linux – window Interaction. Minimum network administration Troubleshooting.

Books:-

- Computer organization , Morris Manu, PHI
- All about FDD , Menorah Lottie ,BPB

WIRELESS NETWORKING AND SECURITY ESSENTIAL

Unit-I: Introduction to wireless Communication System:- Evolution of mobile radio communication , mobile radio system around the world radio communication system –paging system , cordless telephone system, cellular telephone system , comparison of common wireless communication , trends in cellular radio and personal communication , second generation (2G) cellular networks , third generation (3G) wireless networks , introduction to radio wave propagation , free space propagation models.

Unit-II: Basic of mobile communication:- Limitation of conventional mobile system , mobile cellular communication : introduction , concept of frequency reuse , cluster size cellular system architecture ; mobile station , base station , MSC, channels assignment strategies, call handover strategies , interferences and system capacity , Improving capacity in cellular system –cell splitting , sectoring , repeaters, microcell zone concept .

Global system for mobile communication:- GSM services and feature , system architecture , GSM radio subsystem , GSM channel types, location updating and call setup, Introduction to CDMA digital cellular standard , comparison between GSM and CDMA.

Unit-III:- Wireless networking :- Wireless local area network Standard , Technology – RF and IR wireless LAN, diffuse, Quasi –diffuse and point –to- point IR Wireless LAN, Advantage and application of wireless LAN, Introduction to WI-FI, Bluetooth , 3G and 4G wireless system, Wireless LAN in window Networking .

Introduction to satellite communication: - Brief history and overview of satellite communication.

Unit-IV: - System Vulnerabilities, threat & Risk: - Asset & Risk Identification . Confidentiality, Integrity & Availability, Authentication, Authorization.

Data Security:- Data Recovery & Wiping , precautionary measures-Disk Editor, Firewall Configuration ,Anti –spyware and SPAM protection , Backup & Restore ,Disaster Recovery . RAID5

Unit-V:- Other Security Issues:- Remote Desktop and VNC, Configuration Skype, Security Issues in Wireless Routing . Securing FTP Server, IPSec policy, certificate authority server –Configuration SSH Connecting mobile to PC& virus scanning in mobile devices.