

# CURRICULUM FOR PG DIPLOMA IN HARDWARE & NETWORKING



**SRI SAI UNIVERSITY  
PALAMPUR (H.P.) INDIA  
JULY 2015**

## STUDY AND EVALUATION SCHEME

### Semester-I

Course Code	Course Title	STUDY SCHEME			EVALUATION SCHEME		
		Hours/Week			Marks		
		L	T	P	INT	EXT	TOTAL
PDHN101	Basic Electronics & Measuring Instruments	3	--	--	30	50	80
PDHN102	Hardware Trouble shooting	3	--	--	30	50	80
PDHN103	Common Windows Problem & Troubleshooting	3	--	--	30	50	80
PDHN104	Fundamental of Information Technology	3	--	--	30	50	80
PDHN101P	Basic Electronics & Measuring Instruments Laboratory	--	--	2	--	20	20
PDHN102P	Hardware trouble shooting Laboratory	--	--	2	--	20	20
PDHN103P	Common Windows Problem & Troubleshooting Laboratory	--	--	2	--	20	20
PDHN104P	Fundamental of Information Technology Laboratory	--	--	2		20	20
	<b>Total</b>	<b>12</b>	<b>--</b>	<b>8</b>	<b>120</b>	<b>280</b>	<b>400</b>

**Semester-II**

Course Code	Course Title	STUDY SCHEME			EVALUATION SCHEME		
		Hours/Week			Marks		
		L	T	P	INT	EXT	TOTAL
PDHN 201	PCAssembling & Installing Operating System	3	--	--	30	50	80
PDHN 202	Networking technology	3	--	--	30	50	80
PDHN 203	Communicative English	3	--	--	30	50	80
PDHN 201P	Pc assembling & installing OS Laboratory	--	--	4	--	20	20
PDHN 202P	Networking Technology Laboratory	--	--	4	--	20	20
PDHN 203P	Communicative English Laboratory	--	--	4	--	20	20
	<b>Total</b>	<b>9</b>	<b>--</b>	<b>12</b>	<b>90</b>	<b>210</b>	<b>300</b>

## MODE OF ASSESSMENT

### External Assessment:

<u>For Theory Courses:</u>	<u>For practical Courses:</u>
ETE: 50 Marks	ETE: 20 Marks

### Internal Assessment:

<u>For Theory Courses:</u>	
MTE-1	10 Marks
MTE-2	10 Marks
2 Assignments	5*2=10 Marks
Class performance	5 Marks
Attendance	5 Marks
<b>Total</b>	<b>40 marks</b>

# SEMESTER-I

**PDHN101: BASIC ELECTRONICS & MEASURING INSTRUMENTS**

Basic Electricity and conducting Material:-Introduction, Current, Voltage, emf, Power generation system, Switch- plug wiring, Analyzing Conductivity of elements, Types of Conductors, Semi conductors - Silicon, Germanium.

Electronics Components :-Resistors, Capacitors, Inductors, Transforms, Types, working and Properties, Voltage and current sources, Diode, Zener diode, Photo diode, Light emitting diode(LED), Transistors (NPN,PNP), their characteristics and uses, Field effect transistor, Photo transistor.

Electronics Circuits:- AC Fundamentals, Ohm's law, Series and Parallel connection of Registers and Capacitors, Halfwave rectifier, Full wave rectifier and Bridge rectifier.

Regulated Power Supply:-Basic regulated power supply using Zener diode  
Block diagram of IC based Power supply.Basic Switch Mode Power Supply (SMPS)  
Basic uninterrupted Power Supply (UPS)

Basic Measuring Instruments :- Multimeters – Electronics and Digital,Cathode Ray Oscilloscope (CRO), Block diagram and basic working.Different uses of CRO, LCR – Q meter. Measurement by all given device.Different tools used for practical's, Soldering and desoldering practice

**REFERENCE BOOKS**

- (1) Mason Basic Electronics By D.B. Kadia, B.K. Kadia
- (2) Electronics Principles By Malvino Tata Mc Graw-Hill.
- (3)Digital computer Electronics. By Albert Paul Malvino Tata Mc Graw-Hill.

## **PDHN 102:HARDWARE TROUBLE SHOOTING**

Introduction mother boards & its types-ports, slots, connectors, add on cards, power supply units, and cabinet types, Motherboards Problem Diagnosis.

Storage devices. primary & secondary storage medium-magnetic disc, RAM, ROM,PROM,EPROM,Floppy,CDRom,CDRW, DVD, Virtual memory, Cache memory, Linear & Physical memory, video memory.

Fault Diagnosis , Fault Rectification, I/O Slots Check, Serial Port Problems, Hardware Trouble Shooting: Printers, floppy drive, Microphone.

Hard Disk Drive Problems, IC Faults, Display Adapter Problems, Hardware Trouble Shooting: Scanner, Network, Hardware failure, Testing, CMOS, CDROM, Hard disk drive.

Hardware Trouble Shooting: Monitor Mother Board, Sound Card, Video Card, Tips.

### **Reference:**

1. Ibm Pc And Clones: Hardware, Troubleshooting And Maintenance, By Govindarajalu
2. G.Dalin. M.Sc software engineering, HSI PUBLICATIONS

## **PDHN103:COMMON WINDOWS PROBLEM& TROUBLESHOOTING**

Overview of H/W & S/W, network, internet, Operating system, Application program, File types & managing files, file backups, **Common windows problem & troubleshooting**-windows problem:

- After installation of new Software, Running slow, Running error.

Running error, Runtime error, dived error, windows program not responding, Restart without warning.

Turn off without warning, freezing of windows, booting slow, win32 error.

Fixing: Invalid page fault.

Fatal exception error, General protection fault, Blue Screen, Tips do & don't.

Security-Viruses, Worms, Spam, E-Mail Virus, Securing pc, Boot device.

### **Reference:**

1. PC User's Troubleshooting Guide, By TechRepublic, Incorporated
2. G.Dalin. M.Sc software engineering, HSI PUBLICATIONS

**PDHN 104: FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**Computer Organisation:** What are computers? The evolution of computers, Classification of computers. Block Diagram: Input-output devices, Description of Computer Input Units, Other Input Methods, and Computer Output Units. Computer Memory: Memory Cell, Memory Organization, Read Only Memory, Serial Access Memory, Physical Devices Used to construct Memories, Magnetic Hard disk, floppy Disk Drives, Compact Disk Read Only Memory, Magnetic Tape Drives

Low level and high level languages, assemblers, compilers, interpreters, linkers, algorithms, flow charting, decision tables, pseudo code, software software concepts: system & application software packages.

**Computer Generation & Classifications:** First Generation of Computers, The Second Generation, The third Generation, The fourth Generation, The Fifth Generation, Classification of Computers, Distributed Computer System, Parallel Computers.

**Operating System concepts :** different types of operating systems, structure of operating system, DOS/UNIX/LINUX commands, working with Windows, Windows 9x/NT/XP, Data Processing, File Systems and Database Management Systems, different types of Database Management System

Basic elements of a communication system, Data transmission modes, Data Transmission speed, Data transmission media, Digital and Analog Transmission, Network topologies, Network Types (LAN, WAN and MAN), OSI & TCP/IP Model, Internet: Network, Client and Servers, Host & Terminals, TCP/IP, World Wide Web, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Internet Requirements, Web Search Engine, Net Surfing, Internet Services, Intranet.

**Text Books:-**

- 1 Alex Leon & Mathews Leon, "Fundamentals of Information Technology", Leon Techworld,
- 2 Vikas Gupta, "Comdex Computer Kit", Wiley Dreamtech, Delhi,
3. P. K. Sinha & Priti Sinha , "Computer Fundamentals", BPB Publications,.

**References Books:-**

1. V. Raja Raman, "Introduction to Computers", PHI,
2. Alex Leon & Mathews Leon, "Introduction to Computers", Vikas Publishing House,
- 3 Norton Peter, "Introduction to computers", TMH,

# SEMESTER-II

## **PDHN 201:PC ASSEMBLING & INSTALLING OS**

Steps for assembling a PC-commonly used devices an overview, assembling a SMPS in a cabinet, fixing a processor in a mother board, assembling RAM in a motherboard, pinning a cooling fan in a mother board.

Assembling a hard disc drive in a cabinet, assembling a CD/DVD ORM in a cabinet. Assembling a floppy drive in a cabinet, fixing motherboard In a cabinet.

Connecting the cables from the SMPS to motherboard, hard disc, drives &etc.Establishing data connection for to motherboard, hard disc, drives. Fixing wires for power restart switches, fixing wires for power & HDD LED's, fixing wires for external USB and Audio connections.

Steps for installing windows98 & windows XP, Software Trouble Shooting:- Dos, XP, 2000.

Audio, Games, OS, Audacity error in sound device, Installation of Software program.

### **Reference:**

1. How To Assemble a Desktop PC, By David Cahalan, Andreas Ipp, Wikibooks Contributor
2. Upgrading And Repairing Pcs, 19/E, By Mueller Scott
3. G.Dalin. M.Sc software engineering, HSI PUBLICATIONS

## **PDHN 202: NETWORKING TECHNOLOGY**

Introduction to networks: Why networks? Basic network concepts, applications & uses of computer networks, different layers in networks, internet & web concepts, network security.

Software & hardware issues in networking, reference models, OSI, TCP, IP, UDP. Transmission medium –wired communication, wireless communication, satellite communication, PSTN-first generation, second generation, third generation.

Data & its design issues: Protocol & its basics, Different types of protocols, Available services. An overview of all the layers and its design issues: Physical layer, Data link layer, Medium access control sub layer, Network layer, Transport layer, Application layer.

Modern Network Techniques: Basic modern network mediums, basic modern Modem, Ethernet, Switch, Hub, Routers, Hardware & software issues of modern networking mediums, Basic network simulations. An overview of NS2, NS3, Omnet, Implement of TCL language.

Internet Standardization, fire walls, proxy server, URI, URN, HTML, XML, MIME, HTTP Sockets.

### **Reference:**

1. Networking Technology for Digital Devices, By V.S.Bagad, I.A.Dhotre
2. Network Communications Technology, By Ata Elahi
3. Architecting the Telecommunication Evolution: Toward Converged Network Services By Vijay K. Gurbani, Xian-He Sun
4. Computer Networks by Andrew S. Tanenbaum, David Wetherall
5. G.Dalin. M.Sc software engineering, J.Thija, HSI PUBLICATIONS

## **PDHN 203:COMMUNICATIVE ENGLISH**

Grammar in Use: Concepts :Parts of Speech, Tense and Aspect, Mood, Cause, Reason and Purpose, Agreement, Degrees of Comparison, Conditional clauses –Seeking Permission, Request, Command, Reprimand, etc

Types of Communication :Verbal Communication –Non-Verbal Communication Language Variety –Geographical, Formal/In formal, Register, Dialect etc.

Written Communication :Technical Writing (Writing Reports) Business Communication (letters, memos)

Interpersonal Communication :Dealing with Boss, Dealing with subordinates

Oral Communication :Job Interviews, Public Speech, Group Discussions, Brain Storming

### **References:**

1. Developing Communication skills-Krishna Mohan &MeeraBanerji, Macmillan India Ltd
2. How to write and Speak Better –Reader’s Digest, The Reader’s Digest Association Limited
3. The Right Word at the Right Time-Reader’s Digest, The Reader’s Digest Association Limited
4. Modern Linguistics, Prof. Krishnaswamy, S.K. Verma, Oxford University Press

