

**SHIVAJI UNIVERSITY, KOLHAPUR  
CENTRE FOR COMMUNITY DEVELOPMENT**

**CERTIFICATE COURSE IN COMPUTER HARDWARE MAINTANINANCE**

**ACHIVEMENT:**

To give the Computer hardware knowledge to the students learning in Diploma/ Engineering / Polytechnic wings also a certification who has the practical knowledge of hardware and other who wants to take the benefit in short term. Create job opportunities in the IT sector and Self employment etc.

**Eligibility:** 10 th Standard or Equivalent

**Duration:** 4 months (Daily 2 hours)

**Fee per participant:** Rs.3500 + Rs.150 Evaluation charges

**Batch:** Min 15 to Max 30 per infrastructure and facilities of Institute.

**Medium:** Marathi and English

**Syllabus:**

This course duration is of 4 months and divided into 2 Section A and Section B Daily two hours o the bases of 70 clock hour's theory lectures and 80 clock hours practical are expected. Monthly test based on objective question and viva for refreshing knowledge that has acquired in term.

**Final Examination**

A) Class performance	100 marks
B) Project	100 marks
C) Practical : section A and B	100 marks
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300 marks	

**Reference Books**

- A) Network Tatinbum
- B) Windows 2000 professional – Lisa Donald
- C) Windows XP professional
- D) Mastering windows 2000 server – Christa Anderson and Mark Minasi II<sup>nd</sup> Edition BPB publication
- E) Introduction to computers – Tata, Macgrawhim

## Section A

- Computer Fundamentals
- Basic Electronics
- Analog Electronic & Digital Electronic
- Working with Operating System ( DOS / Windows 9x Series.)
- History of Computer Hardware and Types
- Computer Hardware and its Device.
- Computer Architecture
- BIOS And CMOS Setup
- Test and oral

## Section B

- Introduction to Computer Hardware Device and Device Driver
- Studies of Computer Input & Output Device
- Studies of Computer Memory ( Primary & Secondary)
- Studies of Computer Cabinet and SMPS
- Studies of Computer Expansion Cards and Bus
- Assembly of Computer
- Troubleshooting of Computer
- Installation of Software ( System / Application)
- Maintenance of Computer using Utilities and Anti- Virus Software
- Test and Oral

Day wise	Daily Hour	Theory	Practical
<b>Section A</b>			
1.	2	Introduction to Computer	
2.		Introduction to Computer Device	handling with device
3.		Basic Electronic ( Analog / Digital)	Study of Multi meter
4.		Intro. Voltage, Current, Resistance	Ohm's law & examples
5.		Intro. Resistor, Capacitor, Inductor	Specification of Computer
6.		Rectifier, Filter, Timer, Oscillator ckt.	Practically using with ckt.
7.		Number system and conversation	
8.		binary Language and it use	Practically using with ckt.
9.		Gates, Adder, flip-flop and latches ckt.	
10.		Boolean algebra and K-maps	
11.		Over view of Computer	
12.		Into. To Dos	
13.		Dos Commands – Internal	Internal Command
14.		Dos commands – External	External Command
15.		Intro to Windows 9x series	handling windows Operating system and it's tools/options
16.		Working with win 98se	

17.		Study of control panel, Accessories etc.	
18.		Types of Computer	
19.		History of Computer Hardware Gen.	Technology
20.		Study of Hardware Device	Handling Devices ant its Specification
21.		Keyboard / Mouse, Monitor/ Printer	
22.		CPU/Motherboard/Processor	
23.		Memory RAM/ROM/CACHE	
24.		Secondary FDD/HDD/CDROM	
25.		study of Computer Architecture	
26.		How the Computer Works	
27.		BIOS	
28.		Bootng sequence and POST Program	Working with CMOS setup Option
29.		CMOS Setup Option	Troubleshooting with Beep codes
30.		Study of Award/AMI/ Phoenix	
31.		Test and Oral	
32.		Seminar	

<b>Section B</b>			
33		Device and Device Driver	
34		Studies Input/Output Device	
35		Keyboard: Types of Keyboard- Working and Assembly studies	Assembly & troubleshooting Fault Finding. With various tools
36		Scan Code, Internal Architecture	
37		Mouse: Types of Mouse, Working and Assembly studies	Assembly & troubleshooting Fault Finding. With various tools
38		Click & Scrolling assembly, ckt study	
39		Monitor : Types of Monitor, Working and Assembly studies	Assembly & troubleshooting Fault Finding. With various tools
40		Front panel. CRT, LCD, Refresh rate, Interlaced & Non-interlaced	
41		Printer: Types of Printer, Working and Assembly structure studies	Assembly & troubleshooting Fault Finding. With various tools
42		DPI, Dot-matrix/ Inkjet technology	
43		Difference Between Dot/Inkjet	
44		Memory: Types of Memory	
		Primary: RAM/ ROM Types, Working Specification	Assembly & troubleshooting Fault Finding. With various tools
45		Studies of EDO, SDRAM, DDR	
46		Secondary: Types	
47		Floppy Disk Drive Types, Working and connection	Assembly & troubleshooting Fault Finding. With various tools
48		Study of Track & Sector	Format , Swapping
49		Studies with 3.5” & 5.25”	

50	Hard Disk Drive Types, Working and connection IDE/SCSI	Assembly & troubleshooting Fault Finding. With various tools
51	Study with IDE & SCSI	Partition, Format
52	CDROM: Types, Working and connection, IDE / SCSI	Assembly & troubleshooting Fault Finding. With various tools
53	Study of Track and Sector / Working of LASER technology	CD Writing/ Cleaning
54	Motherboard: Types of Motherboard Identification of various components.	Assembly & troubleshooting Fault Finding. With various tools
55	Study of Motherboard Architecture	
56	Study of Chipset, Memory, Bus, BIOS, Ports, and connection etc.	Trouble shooting
57	Processors: Types of Processors and Socket	Configuration and Troubleshooting. Alignment of Heat sink & Fan.
58	Study of Architecture	
59	Specification of Processor	
60	Studies if Socket 478, 370,A etc.	Slot & Chip Processor assembly
61	Cabinet: Types of Cabinet, Front panel and Back panel studies	Using of various types of Cabinet
62	Studies of various architecture & design	ports & Face plates
63	SMPS: Types of SMPS, Internal Ckt studies and Input & Output Signal	Assembly & troubleshooting of SMPS
64	Specification of the SMPS	Measuring with the Multi meter
65	Expansion Cards & Bus: Studies of ISA, PCI, and AGP Bus.	Installation of Various Cards Display, Sound & Modem
66	Studies of the Architecture of Bus	
67	Address Bus, Data Bus & Control Bus	Internal System
68	Assembly of Computer:	Assembly of Pentium & AMD
69	Studies of there procedure	Series of Computer troubleshooting Partition & Format
70	Trouble shooting of Computer	
71	Installation of Software	System Software : OS & Anti-Viruses
72	Installation of Application Software:	MS-Office, (97/2000/Xp)
73	Installation And Troubleshooting : Anti- Virus & Utilities	Norton/PC-Cillin/Quick Heal
74	Maintenance Of Computer	System of Tools & Utilities
75	Test & Oral	
76	Seminar	
77	Multimedia a- Sound card b- AGP graphics c- T.V. Tuner card	