

INSTITUTE OF ADVANCED STUDIES IN  
EDUCATION (DEEMED UNIVERSITY)  
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*Detailed Syllabus  
of*

**CERTIFICATE  
IN  
COMPUTER HARDWARE TECHNOLOGY  
(CCHT)**

**COURSE TITLE** : CCHT  
**DURATION** : 01 YEARS (YEARLY SYSTEM)  
**TOTAL DEGREE MARKS** : 400

**FIRST YEAR**

<b>COURSE TITLE</b>	<b>Paper Code</b>	<b>MARKS</b>		
		<b>THEORY</b>	<b>INTERNAL</b>	<b>TOTAL</b>
<b>BASIC ELECTRONICS COMPONENTS</b>	<b>CCHT-110</b>	<b>70</b>	<b>30</b>	<b>100</b>
<b>COMPUTER FUNDAMENTALS &amp; OPERATING SYSTEM</b>	<b>CCHT-120</b>	<b>70</b>	<b>30</b>	<b>100</b>
<b>PC TROUBLE SHOOTING &amp; DIGITAL ELECTRONICS</b>	<b>CCHT-130</b>	<b>70</b>	<b>30</b>	<b>100</b>
<b>NETWORKING &amp; HARDWARE</b>	<b>CCHT-140</b>	<b>70</b>	<b>30</b>	<b>100</b>

**1. CONDUCTING MATERIALS**

Introduction, classification, their electrical and mechanical properties and their applications

**2 RESISTANCE**

Standardisation, colour codes, power rating specification and properties of fixed and variable resistors specification and properties of thermistors.

**3. FUSES**

Introduction specification properties of various fuses and their application.

**4. CAPACITORS**

Introduction standardisation and colour code characteristics of capacitor tolerance, temperature coefficient type of capacitors & their applications.

**5. INDUCTIVE COMPONENTS**

Introduction to magnetic material and their properties, Inductor characteristics, types of inductor, their features and specifications, transformers, types of transformers.

**6. CIRCUIT ANALYSIS**

Fundamental of AC and its application to circuit theory, energy and power in AC, Kirchoff's voltage and current law simple RC, RL, LC & LRC circuit filters, study of ammeter digital multimeter and how they are used.

**7. CELLS AND BATTERIES**

Introduction, types of various cells and characteristics, applications of different types of cell/batteries, connecting batteries, (with reference to batteries on IBM-PC motherboard and in UPS.)

**8. RELAYS, SWITCHES AND PANEL COMPONENTS**

Introduction to relays, their characteristics, classification, performance during pickup and drop out.

Introduction to switches, different types and their applications.

**9. ACTIVE COMPONENTS**

Introduction to Diode, their characteristics and applications. Zener diode, its characteristics and impedance,

Introduction to Bipolar transistors and its application. FET, MOSFET, JFET, etc. their characteristics and applications,

**Characteristics**

Speed, Accuracy, Storage, Automation, Versatility, Diligence

**System Organisation**

Input Unit, Keyboard, Mouse, Tablet, Scanners etc.

**Storage Device**

Floppy Disk, Hard Disk, CD-ROM

**Software Introduction**

System Software, Application Software

**Numbers System**

Binary Numbers

(1) Disk Operating System

Booting

System Disk, Hard Disk

Concept of Driver

**Internal Commands**

Date, Time, Copy Con, Dir, Copy, Ren, Del, Ver Vol, CLS.

CD, MD, RD, TYPE

**External Commands**

Format, tre, attrib, more, sort, CHKDSK,

Sys, Label, Move, XCopy, Scandisk, Fdisk

**ii) Windows 3x & Windows 95 Environments**

Introduction to Win 3x/Win 95

Its Development & Principles, Parallel Operating System.

Loading Windows

Difference Between Windows -3.1 and Windows-95

Basic Elements of Windows

Parts of Windows, Icon Supports, Mouse Supports

Windows Operation Skills

Basic mouse practice through games, Keyboard, Techniques,

Choosing & Selecting items. Keyboard, Shortcut, Menu

Program Manager

Program Group, Group Icon, Application Icon, Creating & working with

Program item, Moving, Copying & Deleting programs, Starting an Application

Quitting . The Program Manager

File Manager

What is a File Manager? Opening the File Manager. File/Directory Selection

Moving, Copying, Deleting, Creating Directory/Folder. File Search, Disk Management

Wizard, Changing Drives, Copying, Formatting, Labelling, Quitting from the File Manager.

**INTRODUCTION TO WINDOWS`98**

**1.ARCHITECTURE OF IMB PC/ XT AND PC/AT**

Introduction of architecture of PC/XT, PC /AT/ 286/386/ 486/ pentium

**2.STUDY OF VARIOUS ADA[TPR CARDS**

Various display adaptor card & their identification, FSC and HDC card their identification, IDE card and its identification, multi I/O cards and its identification functioning of these cards & connectors, study of SVGA, SCSI cards GIST & Modems.

**3.DISPLAY**

General video information, text and graphics modes, types of display and how to identify them

**4. FLOPPY DISK DRIVES**

various part of FDD,types of floppies,geometry of floppy, various concepts of floppy, interface signals, floppy drives alignment,track0,adjustment,formatting of floppies.

**5..HARD DISK DRIVES**

Type of hard disk, geometry of hard disk. interface signals, various concepts of hard disk, formatting types of concepts, functioning of hard disk,precautions in handling hard disk.

**6. SWITCHED MODE POWER SUPPLY**

Fundamental concepts of SMPS, specification of SMPS according to system requirement various voltage and current ratings available on various types of SMPS,troubleshooting of SMPS, handling of SMPS.

**7. PRINTERS**

Different types of printers & functioning, interface signals and cables, and data ribbon ledger, inkjet operation and maintenance, stepper motor.

**8.TROUBLESHOOTING & MAINTENANCE**

Type of maintenance: preventive and break , maintenance assembly and disassembly of PC and its various parts, printers, run problems their identification and remedy, problem of keyboard,displays, printers, FDD, HDD,SMPS, Mother Board their identification and remedy.

**9. NUMBER SYSTEMS**

Introduction, Binary number system, Hexa decimal. Number systems,their representation, Conversion from one number system, and their arithmetic, ASCII

**10. INTEGRATED CIRCUITS**

Introduction, various families and their characteristics as digital IC's,latest trends in packaging techniques.

**11. SEMI CONDUCTORS MEMORIES**

Introduction, Memory Organisation and Operation, Classification and Characteristics of Memories, Sequential Memory, Read-only Memory and Read-write Memory, DRAM, SRAM, Memory Refreshing.1.

**1.NETWORKING CONCEPTS**

Network, Planning of Network,

H/W & S/W used

Concepts of Network Management

LAN, WAN, MAN, Servers , File Distribution System

Topologies

Windows NT administration

**2. Detailed study of :**

a) SMPS(various types of SMPS in SMPA in PC , printers Monitors , and other peripheral Devices

b) Printers (DMP, Laser, Inkjet)

c) Monitor (Mono, Colour , VGA)

d) FDD, HDD & CD-ROM,storage Devices

**3.INTRODUCTION TO MICROPROCESSOR**

Introduction digital Computer, Computer organization, Micro Computer Organization, Computer Language, Machine Language, Architecture of an 8-Bit Generic microprocessor, simplified memory organization, DMA, interrupts, Introduction to advanced processor.

**4. MICROCOMPUTERS SYSTEMS**

Introduction, classification of Computers, difference, comparison organization, various parts of computer, classification of functional unit, CPU, Main Memory, Secondary Memory, I/O devices.

**5. INTRODUCTION TO 16 BIT MICROPROCESSOR 8088**

Introduction, architecture, pin diagram and pin function, Study of 8084,8088, 8087 and their interfacing with 8088, interfacing of RAM/ DRAM, ROM/ EPROM, Study of PC/XT mother board from design point of view.