

**SYLLABUS**  
**Assembly & Maintenance of PCs**

**Level Code:** L2

**Course ID:** NL/S/L2/C010  
of PC

**Vertical Name:** Computer Hardware

**Course Name:** 2.12.1 Assembly and Maintenance

(NIELIT)

**Objective of the Course:**

To train students in the area of Assembling of Computer, Troubleshooting, Installation of Software and Peripherals.

**Learning Outcomes:**

After completing the course the person should be able to

- Assembled & Disassembled the computers installing the peripherals devices
- Repair of Computer up to Card level
- Install different software of computers
- Data recovery
- Maintenance & formatting the computers
- Password breaking
- Protect the computer from virus

**Expected Job Roles:**

Act as Computer Hardware Technician

Starting his own Computer Assembling and Maintenance Shop

**ESDM Courses**

Duration of the Course (in hours) : 240 Hrs

Minimum Eligibility Criteria and pre-requisites, if any Polytechnic Diploma/Graduation/  
ITI/12th/10th

**Professional Knowledge:**

- Basic parts of Computer system
- Studies of Different types of Mother Board
- Power Supply
- Different types of Cards
- Different types of Monitors
- Different types of Printers and Scanners and their installation procedures

**Professional Skill:**

- Identification of Desktop Motherboard IC's and tracing of North Bridge Section
- Identification of Desktop Motherboard IC's and tracing of RAM/ROM/Clock Section
- Identification of Desktop Motherboard IC's and tracing of PS/2/Audio Section
- Practical on Diagnostics Card Error Code
- Fault finding of Desktop Computer Motherboard
- Card level Test along with error code

- Mother Board Practical Test
- Diagnostics Card Level Test
- Fault Tracing through CRO Test
- Different Drivers Loading Test
- Soldering and De-soldering Test
- BGA Chip Replacement and Reboiling Test

**Core Skill:**

- Fault Diagnostic Skill
- Soldering and De-soldering Skill
- Motherboard Repair Skill
- Operation of BGA Machine Skill
- Software Installation Skill
- BIOS Programming Skill
- Partition making without Formatting Skill
- How to make Multi boot Pen Drive Skill
- How to Recover window by Command Prompt Skill

**Detailed Syllabus of Course**

| <b>Module. No</b> | <b>Module. Name with detailed syllabus</b>   | <b>Minimum No. of Hours</b> |
|-------------------|--|-----------------------------|
| <b>Module-I</b>   | Introduction to Computer, Uses of Computer, Different between Hardware & Software, Different types of computers inside PC and its peripherals devices, Booting concept of computer in DOS and Windows environment, Different input and output devices/ cables, connectors identifications, Identifications of different types of motherboard, controller cards, display cards, sound card AGP cards FAX/Modem Cards, TV Tuner Cards, LAN Cards, Ethernet cards, Different types of RAM used in PC's. | 40 Hrs                      |
| <b>Module-II</b>  | BIOS setting, Formatting of Hard Disk, Installation of Operating System i.e. DOS/Windows, Off-line drive installation / online drive installation / Driver backup / restore / partition formatting / Windows file repairing / BIOS password break / Administrative   | 30 Hrs                      |

|                   |  |        |
|-------------------|--|--------|
|                   | password break / Data recovery / Pen Driver bootable / Sound Problem / USB Problem / LAN problem etc.  |        |
| <b>Module-III</b> | Application Software Installation/ Different types of Application Software/ Antivirus Software Installation/ different types of Antivirus Software/ Protect PC from Virus / Hard Disk utility Software / Dual Booting Installation etc   | 40 Hrs |
| <b>Module-IV</b>  | System integration of different types of computers, such as PC,PCXT, PC –AT etc. upto Pentium-4 label, Trouble shooting of shooting of different types of faults, Different computer cards identifications and trouble shooting, Power supplies installation and trouble shooting, Different types of SMPS identifications, Hard Disk driver installation and configuration setting, Use of CD ROM and DVD Drivers, Using of FDD drives, Different types of keyboards, repairing and maintenance, different types of monitors, Monitors Repairing / Maintenance / Mouse repairing and Installation | 50 Hrs |
| <b>Module-V</b>   | Different types of printers, working of printers, working / repairing of DMP printers, working / repairing of inkjet printer, working / repairing of LaserJet printer, Checking of printer interface cable and dip switch setting, self test and loading of printer drives,  | 30 Hrs |

|                  |  |        |
|------------------|--|--------|
|                  | introduction to UPS, different types of UPS maintenance and servicing of UPS, battery replacement of UPS   |        |
| <b>Module-VI</b> | Assembly and dismantling of PCs front panel connection, preventing maintenance and Cleaning, servicing of computer, Type of Backup, Taking Backup files and fine tuning the system, running diagnostics tool, running of virus protection programme, FAQ and feedback. | 50 Hrs |

**Recommended Hardware(minimum batch size 10):**

Different types of Mother Board

- Desktop

Different types of Cards

- VGA
- AGP
- NIC
- Audio

Different types of Tools and instrument

- BGA Machine
- Soldering and Disordering Station
- Oscilloscope 25-100 Mhz
- Multi-meter
- Digital IC Tester
- Analog IC Tester
- Function Generator
- Power Supply 0-30 V
- Small screw Driver kit
- Different types of small Plair set
- De-soldering pump
- Soldering wire
- Twizer,
- Bond make liquid flux 0% some respective components etc.

**Recommended Software:**

- Operating System
- Diagnostic Card for Desktop and Laptop

**Text Books:**

Modern Computer Hardware Course

Computer Hardware Course

Inside Module 13 Motherboard 14 GT Publishers Author S K Gupta

Tablet PC Servicing Manual GT Publishers Author S K Gupta

**Reference Books:** Circuit Diagram Books of different types of Mother Boards