

Discipline/Programme	Computer Science
Semester	2
Type of Course	MDC
Course Code	24UCAPMDC101
Course Title	Computer Hardware and Assembling
Course Level	100-199
Course Summary	This course enables the students to understand the fundamentals of PC assembly and provide a thorough understanding of the components required to build a PC from scratch.
Lecture/Tutorial/Practical Hours	30/0/30

This course provides a comprehensive introduction to the fundamentals of computer systems and hardware components. It covers the evolution of computers through five generations, classifications into Analog, Digital, and Hybrid types, and categories such as Micro, Mini, Mainframe, Supercomputers, and Servers. Students learn about the internal architecture of a computer, including input and output units, memory systems, and the CPU (ALU + CU).

The course delves into the booting process, highlighting key elements like POST, BIOS, clock speed, and memory performance. It provides a detailed understanding of computer hardware, including DC regulated power supplies, Switch Mode Power Supplies (SMPS), inverters, and UPS systems. The architecture and components of the CPU and motherboard are analysed, alongside the roles of expansion slots like ISA, PCI, and USB connectors.

A thorough exploration of memory systems is conducted, covering primary memory (RAM and ROM types), secondary storage (hard disk structure, tracks, and sectors), and optical storage media like CDs, DVDs, and Blu-ray disks. Practical knowledge in PC assembly is emphasized, teaching step-by-step integration of hardware components.

Students also gain expertise in input devices like keyboards, scanners, and microphones, as well as output devices such as monitors (CRT, LED, LCD, and Plasma) and printers (impact and non-impact). Troubleshooting techniques for hardware and booting issues are introduced, along with BIOS and CMOS configuration for performance optimization.

By the end of the course, students will have a foundational understanding of computer systems, practical skills in assembling and maintaining PCs, and the ability to troubleshoot and optimize hardware components, preparing them for further studies or careers in computer hardware and system integration.

Learning Outcome of the Course

- Understanding Computer Evolution and Types
- Knowledge of Computer Architecture
- Booting Process and Performance Metrics
- Proficiency in Power Supply Systems
- Comprehensive Knowledge of Motherboard and CPU
- Memory Systems Mastery
- Hands-on PC Assembly Skills
- Proficient Use of Input and Output Devices
- Expertise in Expansion and Connectivity
- BIOS and CMOS Configuration
- Troubleshooting and Maintenance
- Real-World Application of Hardware Knowledge
- Foundation for Advanced Studies

Modules

1. **Introduction to Computers**
2. **Introduction to Computer Hardware**
3. **Expansion Slots**
4. **Memory**
5. **Input Devices & Output Devices**

COURSE TEACHER- SOFEL SEBASTIAN