

Semester 1: Computer Hardware

- **Electronic Components & PC Hardware**
 - Basics of electronic components (resistors, capacitors, ICs)
 - Motherboard architecture and components
 - CPU, RAM, storage devices (HDD, SSD)
 - Input/output devices and peripherals
- **PC Architecture**
 - Assembling a computer system
 - BIOS/UEFI setup and configuration
 - Installing and configuring operating systems
 - Troubleshooting common hardware issues
- **Practical Work**
 - Hands-on assembly and disassembly of PCs
 - Hardware diagnostics and repair exercises

Semester 2: Networking Fundamentals

- **Networking Basics**
 - Introduction to computer networks (LAN, WAN, MAN)
 - OSI and TCP/IP models
 - IP addressing (IPv4, IPv6) and subnetting
 - Network topologies (star, bus, ring, mesh)
- **Networking Devices & Configuration**
 - Routers, switches, hubs, access points
 - Cabling standards (Ethernet, fiber optics)
 - Configuring wired and wireless networks
 - Sharing files and printers over a network
- **Network Security & Administration**
 - Firewalls, antivirus, and encryption basics
 - User authentication and access control
 - Common threats (malware, phishing, DoS attacks)
 - Best practices for securing networks

Practical Projects & Assessment

- Assemble and configure a desktop computer
- Install and configure Windows/Linux OS
- Set up a small LAN with file sharing
- Configure a Wi-Fi router with security settings
- Troubleshoot hardware and network issues
- Final project: Build and secure a small office network

Learning Outcomes

By the end of the DHN course, students will:

- Understand **computer hardware components and their functions**
- Assemble, configure, and troubleshoot computer systems
- Set up and manage **basic networks (wired and wireless)**
- Apply networking protocols and IP addressing
- Implement **security measures** to protect systems and networks
- Gain hands-on experience with real-world hardware and networking tasks