Topic: Overview of Computer Systems

Lesson Objectives

By the end of this lesson, students should be able to:

- Define a **computer** and a **computer system**
- Identify and describe the **components of a computer**
- Explain the **characteristics of computers**
- Compare **computers** to other machines

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1. What is a Computer?

Definition:

A **computer** is an **electronic machine** that can:

- **Accept data (input)**
- **Process the data** based on instructions
- **Produce information (output)**
- **Store data and information** for future use

Simple Meaning:

A **computer** is a fast, automatic problem-solving machine that helps in processing data into meaningful information.

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2. What is a Computer System?

A **computer system** refers to a **complete set of components** that work together to perform computer operations effectively.

A computer system is made up of:

- **Hardware** (the physical parts)
- **Software** (the programs or instructions)

- **Humanware (Peopleware)** (the users and operators)

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3. Components of a Computer System

a) Hardware

These are the **physical parts of a computer** you can see, touch, and handle.

Examples:

- **Input devices** – Keyboard, Mouse, Scanner, Joystick
- **Output devices** – Monitor, Printer, Speakers
- **System unit** – Central Processing Unit (CPU), Motherboard, Power supply
- **Storage devices** – Hard drive, Flash drive, CD/DVD, Memory card
- **Communication devices** – Modem, Network cables

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b) Software

These are the **programs and instructions** that tell the hardware what to do.

Types of Software:

Type	Examples	Purpose
System Software	Windows OS, macOS, Linux	Manages computer hardware and system processes
Application Software	Microsoft Word, Excel, CorelDraw	Allows users to perform specific tasks
Utility Software	Antivirus, Disk cleaner	Helps maintain the computer
Programming Software	Python, Java, C++	For writing computer programs

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c) Humanware (Peopleware)

This refers to **the people who design, operate, and maintain computers**.

Examples:

- Users (students, office workers)
- Computer engineers
- Programmers
- Technicians
- Teachers

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4. Input, Process, Output, and Storage (IPOS)

Stage	Function	Example
Input	Enter data into the computer	Typing on a keyboard
Processing	The CPU performs calculations	Data manipulation
Output	Displays the result	Seeing text on a monitor
Storage	Saves the data permanently or temporarily	Saving a file to a flash drive

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5. Characteristics of a Computer

Feature	Explanation
Speed	A computer can process millions of instructions per second. For example, adding large numbers quickly.
Accuracy	Computers provide accurate results if the input is correct (GIGO: Garbage In, Garbage Out).
Automation	Once programmed, computers work without further human involvement.
Storage	Computers can store large amounts of data in memory or storage devices.
Diligence	Unlike humans, computers do not get tired or bored. They can work continuously.
Multitasking	Can perform multiple tasks at the same time, e.g., playing music while typing.

Feature	Explanation
Connectivity	Computers can connect to other devices and the internet for communication and sharing.
Versatility	Can be used in various fields such as education, business, medicine, etc.

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6. Differences Between Computers and Other Machines

Feature	Computer	Other Machines (e.g., Typewriter, Calculator)
Speed	Extremely fast	Comparatively slower
Accuracy	Very accurate	May need correction
Memory/Storage	Can store large data permanently	Limited or no storage
Functionality	Multi-purpose (typing, calculations, graphics, communication)	Usually single-purpose
Automation	Fully automatic	Mostly manual operation
Decision Making	Can follow complex instructions	Cannot

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7. Applications of Computers in Everyday Life

Field	Uses of Computers
Education	e-Learning, research, examinations
Business	Record keeping, accounting, online transactions
Health	Storing patient records, medical research
Communication	Sending emails, chatting, video conferencing
Entertainment	Watching movies, listening to music, gaming
Science	Data analysis, weather forecasting

Field	Uses of Computers
Engineering	Designs, simulations

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8. Simple Block Diagram of a Computer System

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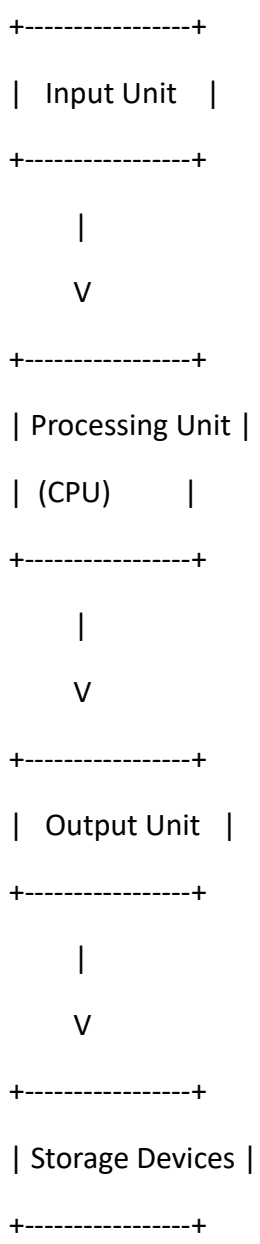

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9. Summary of Key Points

Topic	Details
Computer	An electronic device for data processing
Computer System	Hardware + Software + Humanware
Hardware	Physical parts (keyboard, mouse, CPU)
Software	Programs and applications
Humanware	People who operate or maintain computers
Characteristics	Speed, accuracy, storage, automation
Difference from Machines	Computers are versatile, faster, and programmable