Tishk International University

INTRODUCTION TO INFORMATION TECHNOLOGY

1st Grade- 2020-2021
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Syllabus of Introduction to IT

- ➢ What makes a Computer?
- ➢ Main Functions that a computer do.
- ➢ Binary and Data.
- ➢ How the Computer actually work.
- ➢ Computer Parts (Input, Output)
- ➢ Computer Parts (CPU)
- ➢ Computer Parts (Storage, Memory)
- ➢ Computer Parts (Motherboard, Ports)
- ➢ Mouse and Keyboard
- ➢ Hardware, Software
- ➢ Operating System
- ➢ Common Computer Terminology.

## The purposes and the objectives of Introduction to IT:

The purposes of Introduction to IT:

- A computer system has three main components: *hardware, software*, and *people*.
- The equipment associated with a computer system is called *hardware*.
- *Software* is a set of instructions that tells the hardware what to do.
- People, however, are the most important component of a computer system - people use the power of the computer for some purpose.
- In fact, this course will show you that the computer can be a *tool* for just about anyone from a business person, to a student , to an artist, to a housekeeper, an incredibly powerful and flexible tool.

The objectives of Introduction to IT:

- Introduce the computing term and identify the main functions that a computer device does.
- Explain binary, data, circuits and logic and how they use Zeros and Ones to give us the output we desire.
- Tackling the main parts of the computer along with its input and output devices.
- Identifying the differences between hardware, software and operating systems.

What is a Computer?
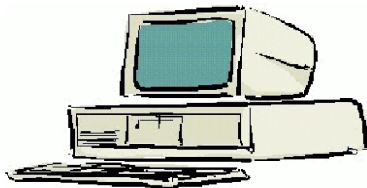
An electronic device that stores, retrieves, and processes data, and can be programmed with instructions. A computer is composed of hardware and software, and can exist in a variety of sizes and configurations.

THE FIVE GENERATIONS OF COMPUTERS PRESENTATION

- INTRODUCTION

- FIRST GENERATION OF COMPUTER

- SECOND GENERATION OF COMPUTER

- THIRD GENERATION OF COMPUTER

- FOURTH GENERATION OF COMPUTER

- FIFTH GENERATION OF COMPUTER

INTRODUCTION:

- The history of computer development is often referred to in reference to the different generations of computing devices.

- Each generation of computer is characterized by a major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, more powerful and more efficient and reliable devices.

First Generation - 1940-1956:

Vacuum Tubes:

- Used vacuum tubes for circuitry, magnetic drums for memory, and were often enormous, taking up entire rooms.

- Very expensive , consumed great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.

- Relied on machine language to perform operations, could solve one problem at a time.

- Input was based on punched cards and paper tape, and output was displayed on printouts.

- UNIVAC and ENIAC computers are examples of first-generation computing devices.

Second Generation - 1956-1963:
Transistors:

- Transistors replaced vacuum tubes allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than their first-generation predecessors.

- Still relied on punched cards for input and printouts for output.

- Second-generation computers moved from cryptic binary machine language to symbolic, or assembly, languages, which allowed programmers to specify instructions in words.

- High-level programming languages like COBOL and FORTRAN were used.

Third Generation - 1964-1971:

Integrated Circuits:

- Integrated circuit was used, Transistors were miniaturized and placed on silicon chips, called semiconductors, which increased the speed and efficiency of computers.

- Instead of punched cards and printouts, users interacted through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory.

- Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

Fourth Generation - 1971-1995:

Microprocessors

- Microprocessor were used, What in the first generation filled an entire room could now fit in the palm of the hand.

- In 1981 IBM introduced its first computer for the home user, and in 1984 Apple introduced the Macintosh.

- As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet.

- Fourth generation computers also saw the development of GUIs, the mouse and Hand held devices.

Fifth Generation:1995 and Beyond:

Artificial Intelligence

- Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today.

- The use of parallel processing and superconductors is helping to make artificial intelligence a reality.

- Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come.

- The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

Main functions that a computer

Hardware & Software

The term hardware refers to the physical components of your computer such as the system unit, mouse, keyboard, monitor etc.
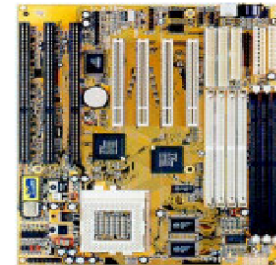
The software is the instructions that makes the computer work. Software is held either on your computers hard disk, CD-ROM, DVD or on a diskette (floppy disk) and is loaded (i.e. copied) from the disk into the computers RAM (Random Access Memory), as and when required.

Types of Computers

Mini and Mainframe Computers

Very powerful, used by large organisations such an banks to control the entire business operation. Very expensive!
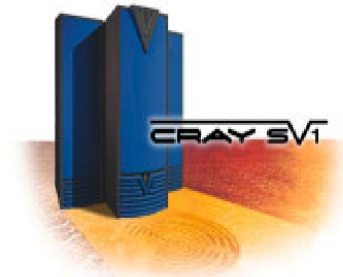
Personal Computers

Cheap and easy to use. Often used as stand-alone computers or in a network. May be connected to large mainframe computers within big companies.

Hardware Components

Input Devices -- *"How to tell it what to do"*

    - A keyboard and mouse are the standard way to interact with the computer. Other devices include joysticks and game pads used primarily for games.

Output Devices -- *"How it shows you what it is doing"*

    - The monitor (the screen) is how the computer sends information back to you. A printer is also an output device.

Hardware Components

INPUT DEVICES

- **The Mouse**
  - Used to 'drive' Microsoft Windows
- **The Keyboard**
  - The keyboard is still the commonest way of entering information into a computer
- **Tracker Balls**
  - an alternative to the traditional mouse and often used by graphic designers

Hardware Components

INPUT DEVICES

- **Scanners**
  - A scanner allows you to scan printed material and convert it into a file format that may be used within the PC

- **Touch Pads**
  - A device that lays on the desktop and responds to pressure

- **Light Pens**
  - Used to allow users to point to areas on a screen

- **Joysticks**
  - Many games require a joystick for the proper playing of the game

Hardware Components

OUTPUT DEVICES

- **VDU**
  - The computer screen is used for outputting information in an understandable format
- **Printers**
  - There are many different types of printers.
  - In large organizations laser printers are most commonly used due to the fact that they can print very fast and give a very high quality output.

Hardware Components

OUTPUT DEVICES

- **Plotters**
  - A plotter is an output device similar to a printer, but normally allows you to print larger images.
- **Speakers**
  - Enhances the value of educational and presentation products.
- **Speech synthesisers**
  - Gives you the ability to not only to display text on a monitor but also to read the text to you

Hardware Components

Storage Devices -- "How it saves data and programs"

- Hard disk drives are an internal, higher capacity drive which also stores the operating system which runs when you power on the computer.

- "Floppy" disk drives allow you to save work on small disks and take the data with you.

Hardware Components

Hard Disks

- Speed:
  - Very fast!
  - The speed of a hard disk is often quoted as "average access time" speed, measured in milliseconds. The smaller this number the faster the disk.
- Capacity:
  - Enormous! Often 40/80 Gigabytes. A Gigabyte is equivalent to 1024 Megabytes.
- Cost:
  - Hard disks costs are falling rapidly and normally represent the cheapest way of storing data.

Hardware Components

Diskettes (Floppy Disks)

- Speed:
  - Very slow!
- Capacity:
  - Normally 1.44 Mbytes.
- Cost:
  - Very cheap.

Hardware Components

CD-ROM Disks

- Speed:
  - Much slower than hard disks. The original CD-ROM speciation is given a value of 1x speed, and later, faster CD-ROMs are quoted as a multiple of this value.
- Capacity:
  - Around 650 Mbytes and more

Hardware Components

DVD Drives

- Speed:
  - Much faster than CD-ROM drives but not as fast as hard disks.
- Capacity:
  - Up to 17 Gbytes.
- Cost:
  - Slightly higher than CD-ROM drives.

Main Parts of Computer

Memory -- *"How the processor stores and uses immediate data"*

- **RAM - Random Access Memory**
  - The main 'working' memory used by the computer.

  - When the operating system loads from disk when you first switch on the computer, it is copied into RAM.

  - As a rough rule, a Microsoft Windows based computer will operate faster if you install more RAM. Data and programs stored in RAM are volatile (i.e. the information is lost when you switch off the computer).

Hardware Components

Memory

- **ROM – Read Only Memory**
  - Read Only Memory (ROM) as the name suggests is a special type of memory chip that holds software that can be read but not written to.

  - A good example is the ROM-BIOS chip, which contains read-only software.

  - Often network cards and video cards also contain ROM chips.