



مدونة المناهج السعودية

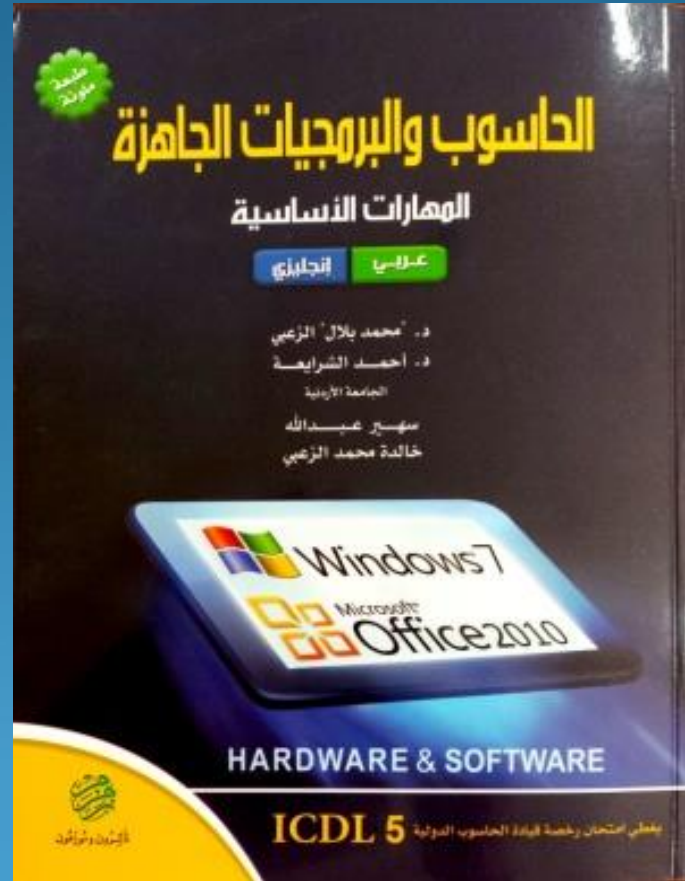
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الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية

الحاسوب والبرمجيات الجاهزة

المهارات الأساسية



أ. رضوان الله

Section 1:

information & communication technology

Chapter 1: Hardware

lecture 1

Hardware:-

This term refers to the **physical** component of the computer, such as **the keyboard ,the printer** and **the mouse... etc.**

Personal computers:

IBM produced in 1981, the first personal computer and is one of the most popular types of computers and the cheapest price and the small size and high capacity

There are two kinds of PCs:

✓ **IBM compatible computers :**

Which can run the same programs as computers made by IBM , the term PCs compatible relates to PCs manufactured by companies others than IBM that compatible with the traditional PC specification these computers run an operating system called windows.

✓ **Apple computers:**

This kind of computers use different operating system which is called **Mac OS**. Which needs a special versions of software.

Laptops and Palm Computers:

■ Laptops Computers:

This kind is small briefcase size portable it has Small screen and small keyboard it can run on batteries as well as the main power, it is as power full as a PC but more expensive..

There are smaller computers have the same properties called Notebook.



■ **Palmtop Computers:**

A small hand-held computers And called Notepads, its prices are Cheap.



hand-held portable digital devices:

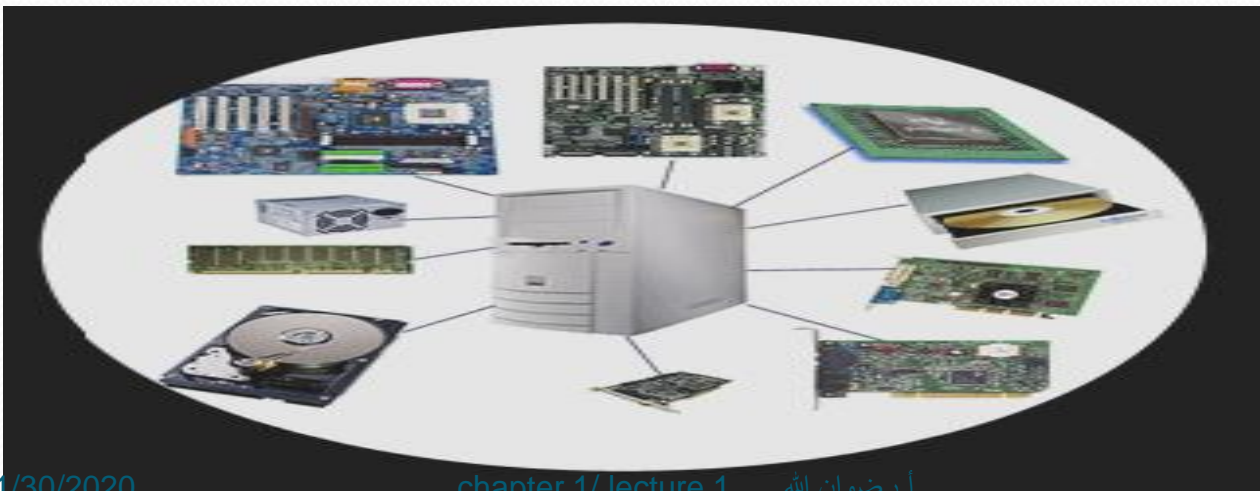
- **Personal digital Assistant (PDA)**
- **Mobile Phone**
- **Smart Phone**
- **Multimedia Player**

The main parts of the computer

1- Central processing unit (CPU):-

The most importantly part of the computer it performs all calculations and determines how fast your computer , the CPU speed is measured by megahertz (MHz) or Gigahertz (GHz) .

the CPU contains the following elements:



➤ **Control Unit:**

Which responsible for controlling the sequencing and timing of of the other elements making up the CPU

➤ **Arithmetic Logic Unit (ALU):**

Which performs arithmetic operations and logical operations, and control the speed of this operations.

➤ **Registers:**

Where the data used by ALU and the program instruction which are used by the control unit are stored.

➤ Buses:

Are a collection of wires through which data is transmitted from one part of a computer to another.

2- Memory:-

Also called the **main memory**, Where the data is stored temporarily.
and types of main memory are:

✓ **Random Access Memory(RAM):**

Which hold data and program instructions temporarily for processing the data .the contents of RAM are lost when the power is turned off

✓ **Read Only Memory:(ROM)**

Which is a chip inside the computer ,stores program instruction normally to start (boot) the ram content are not lost when the power turned off it holds soft ware that can be read but not written to

✓ **BIOS memory:**

special chip held on motherboard contains basic system software for Input / Output in the computer.

3- Storage Unites

Which are any devices that save the result of the processed data permanently for later retrieval, and the most important **Hard Disks**, Which is the most widely used, The hard disk is the main disk in the computer, Which stores the operating system and application software.

4- Input Devices

Which are consist of devices that allow people to put data into the computer in a form that the computer can use examples **the keyboard** and **the mouse**.

5- Output Devices

Which are consist of devices that translate the information processed by the computer in to form that human can understands, Output could take the form of sound (speakers) and image (monitor) and these units will be explained in the subsequent lessons.

Input/output Ports

Ports:-

Ports is a socket on the out side of the system unit that is connected to an expansion board in the inside the system unit , There are several types, including:

- Universal Serial Bus (USB)
- Serial ports
- Parallel ports
- Network ports
- FireWire ports

Computer Performance

Factors effecting Computer Performance:

performance of the computer, Means the factors that affect the speed of the CPU processing, there are many factors that can affect the performance of a computer.

❖ Clock Speed frequency:

The processing speed of a processor is represented by its clock speed which is related to the number of times the CPU can process data or instruction in a second the clock speed is measured by **MGz**.

❖ **Random Access Memory (RAM) Size:**

The more memory you have the faster the computer will appear to operate.

❖ **Hard Disk speed:**

The speed of hard disk determine through the time access to data, which is measured in milliseconds, If the access time decrease, that will increase the speed of data storage on disk or retrieve it.

❖ **Hard Disk space:**

Must be a sufficient free space available on the hard disk, otherwise the computer will be slow.

❖ Defragment files:

Advised to Defragment to arrange the files and programs on your computer to provide additional space on your hard disk.

❖ CPU Speed:

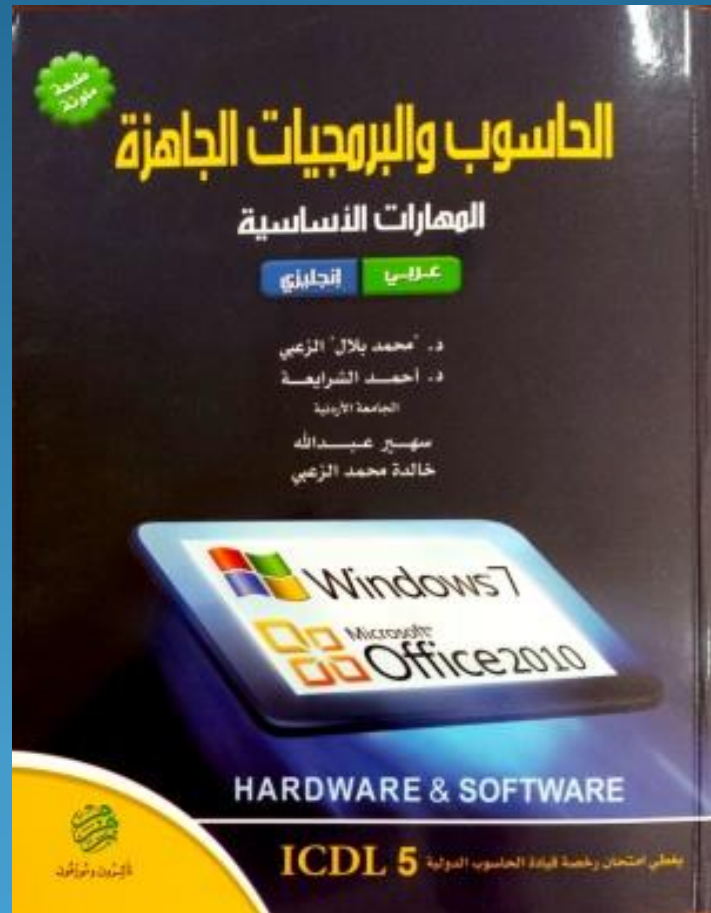
The most important component of the computer and sometimes called **the processor** . It is considered one of the main units that determine the capacity of the computer and its speed; Which is measured by **MGz** or **GHz**, and If the processor speed have increased that will increase the speed of the computer **as we mentioned.**

❖ Number of Running Applications:

Which Running multiple applications at once called **multitasking**, If the number of active applications at the same time increase that will reduce the performance of the computer, because it requires a larger memory consuming.

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Chapter 1: Hardware

lecture 2

Memory and storage

Computer's Memory:

the computer stores the data in locations called the memory, and there are two main types of memory:

Primary (main) memory and Secondary memory.

■ Primary (main) memory:

Store data temporarily.

✓ Random Access Memory (RAM)

✓ Read only Memory (ROM)

- ✓ **Cache Memory**
- ✓ **ROM-BIOS Memory**
- ✓ **Video Memory or Video Card**

■ **Secondary memory:**

Secondary memory, store data permanently, for example, the hard disk.

Representing Data in the Computer:

The familiar **decimal** system consists of ten numbers (0-9), the computer can not deal with this system.

Data is represented and handled in the computer by using **binary system**, which is using only **0.1**.

Memory Capacity Measurement:

Each binary number is called bit, **short** for **Binary Digit**, It has only two values only **zero** and **one (0,1)**.

Each group of **eight binary digits** called **bytes**.

And the memory capacity is usually measured by **megabyte** (**million bytes**)

And the following table shows the most important units used in the measurement of memory capacity, namely:

Bit	0,1
Byte	8 Bit
Kilobyte	1024 Byte
Megabyte	(about million bytes)
Gigabyte	(about billion bytes)
Terabyte	(about trillion bytes)

Storage media:

Also called Secondary storage systems.

It is used to store data permanently.

➤ Internal Hard Disk

It is located inside the system unit, The total capacity (20-250) GB.

➤ External Hard Disk

They are disks connected to a USB port on the system unit.

And its speed is slower than the Internal Hard Disk and expensive.



➤ Floppy Disk:

It is a small and portable magnetized disk in a plastic case. It is light in weight its capacity is **1.4 MB**, It is slower than the hard disk and its price is very cheap.



➤ CD-ROM (Compact Disk Read Only Memory):

It is an optical disk which uses laser to read information.

It has a capacity of up to 650 MB, and used to store multimedia software (voice, text, movement and video), there are two types of CD-ROM:



- **CD-Recordable (CD-R):** Record only one time, cannot delete the information stored in them.
- **CD-Rewritable (CD-RW):** The stored data can be changed, erased and you can add more data

➤ **Digital Versatile Disk (DVD):**

It is a high capacity development of CD-ROM.

It has higher capacity than CD-ROM, over 4 Gigabytes, and it is used to store high quality films and videos.

➤ **USB Flash Drive:**

Small in size and can be put in the pocket, used to store large multimedia files.

➤ **Network Drive:**

It is a connection to the hard drive of a remote computer, that allow you to access shared files and programs.

➤ **Online File Storage:**

It is an internet hosting service designed to host large files.

➤ **Flash Memory Card:**

They are solid-state electronic data storage devices.

It used **in digital cameras, laptops, phones, music players, video games and other electronics.**

Input & Output Devices:

Input Devices:

Allow you to input information to the computer, most important examples are:

□ Keyboard:

Containing the standard type writer keys and a number of specialized keys. Recently appeared **Wireless Keyboard**.

□ Mouse

Consist of a small plastic box, with a wheel in the bottom of it. It has two buttons. Recently appeared **Wireless Mouse**.

❑ Track Ball:

It is a mouse turned upside down. The user rotates the ball with fingers to move the cursor on the screen.

❑ Touch Pad:

It is a touch-sensitive device, when the finger moves on its surface, the cursor of the screen will move. Use as an alternative of the mouse .As in the laptop.

❑ Joystick:

It is a small hand-lever that can be moves in any direction to control the movement on the screen. used for playing games on the computer.

❑ Microphone:

Is used to record sounds on the Computer.



❑ Scanners:

Converts page contents such as text, images, graphics into electronic signals. Also, it is used to read bar codes.

They are several forms:

- FlatBed
- SheetFed
- HandHeld
- Stationary Scanners
- Drum Scanner



❑ Digital Camera:

Similar to the ordinary camera, but it uses flash memory to save images.



❑ web Camera:

A small digital camera, placed on the top of the computer monitor. Used by people to communicate by the internet.



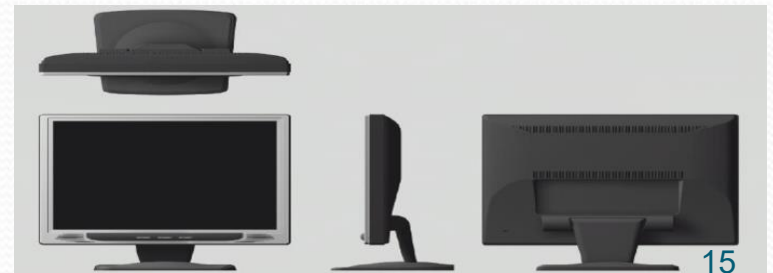
Output Devices:

allow you to output information from the computer. Which include:

❖ Monitors:

Considered one of the most important equipment to show text and graphics., And there are several types of Monitors, the most important are:

- **Traditional Computer Monitor**
- **Flat-Panel Display**



❖ Projector:

Is a device that connected to the computers to display outputs on large boards.



❖ Speakers:

Used in multimedia systems to produce sounds. They can be used either with loudspeakers or with headphones.



❖ Speech Synthesizers:

It is a software that produces sound that resembles human speech. You can use a microphone to talk to the computer to convert the spoken word into a text that will be displayed using Word processing application.



❖ Printers:

Are used to output the results on paper, there are several types of printers, including :

■ Laser Printers:

They are very quiet

The colored laser printer is very expensive.



■ Inkjet Printers:

It is expensive, and slower than the laser printer.



■ Dot Matrix Printers:

It produce noise, recently has been replaced by the inject printer



Input and Output Devices:

✓ Touchscreen:

It is used as an input and output device.

