Practical class № 3

Subject: «Components of the computer. System resources. Storage devices. Data storage. Installation of peripherals and test the operation.»

Purpose: Introduce basic components of a computer, to form the ability to work with system resources. Install peripheral devices and test your computer.

Basic concepts

Modern computers are electronic and digital. The actual machinery -- wires, transistors, and circuits -- is called *hardware*; the instructions and data are called *software*.

All general-purpose computers require the following hardware components:

- **memory:** enables a computer to store, at least temporarily, data and programs.
- **mass storage device:** allows a computer to permanently retain large amounts of data. Common mass storage devices include disk drives and tape drives.

- **input device:** usually a keyboard and mouse, the input device is the conduit through which data and instructions enter a computer.
- **output device:** a display screen, printer, or other device that lets you see what the computer has accomplished.
- **central processing unit (CPU):** the heart of the computer, this is the component that actually executes instructions.

In addition to these components, many others make it possible for the basic components to work together efficiently. For example, every computer requires a bus that transmits data from one part of the computer to another.

Computer Classification, By Size and Power

Computers can be generally classified by size and power as follows, though there is considerable overlap:

- **personal computer:** a small, single-user computer based on a microprocessor. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.
- **workstation:** a powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.
- **minicomputer:** a multi-user computer capable of supporting from 10 to hundreds of users simultaneously.
- **mainframe:** a powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.

- **supercomputer:** an extremely fast computer that can perform hundreds of millions of instructions per second.

Common PC Components

This table lists all of the common computer components, what they connect to and what they are used for.

| №	COMPONENT	PURPOSE
1	Motherboard	The motherboard or mainboard is the main circuitboard which interconnects to all other components. The motherboard allows communication and power to flow throughout the computer system.
2	Processor (CPU)	The Central Processing Unit (CPU) is the brain of the computer system. This is the part of the computer which processes all inputs and decides how they will be outputed.
3	Memory (RAM)	Random Access Memory (RAM) is your computers short term memory and enables the computer system to perform multitasking functions such as copy and paste or type information into a word document without it saving.
4	Video/Graphics Card	The Video/Graphics Card is responsible for receiving visual inputs and displaying (outputing) all visual data. Graphics processing has a very difficult task which is why modern graphics cards now have Graphics Processor Units (GPU) which work like a CPU but for visual data only. This allows quicker rendering of 3D images and streaming of high definition video and leaves the CPU free to work on all other data.
5	Network Interface Card (NIC)	The Network Interface Card (NIC) allows your computer system to communicate and pass data to other computer systems within a Local Area Network (LAN) or over the internet to Wide Area Networks (WAN).
6	Hard Drive (HDD)	The Hard Drive (HDD) is the long term storage for your computer system. Hard Drives are used to archive and store data for future retreival.
7	CD/DVD Drive (ROM)	The CD/DVD ROM Drive allows your computer system to read data from external media like CDs and DVDs. Generally there are two types of CD/DVD ROM; readers and writers (burners).
8	Sound Card	The Sound Card allows for the input (Microphones) and output (Speakers) of audio related data.

Exercise 1.

1. Open the folder **Comp** on your desktop.
2. Locate the file **RootMovie.swf** and open(picture 1).

Picture 1- Virtual Desktop

3. You need to close the tab and go to the tab to **Learn**(Picture 2).
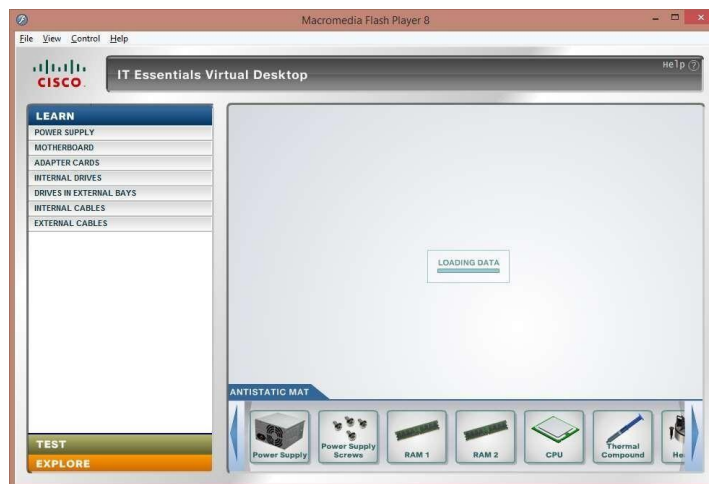
Picture 2- The tab to Learn

4. In this tab you should consider Forums motherboard, adapter cards, internal drives, drives in external bays, internal cables, external cables(picture 3).

Picture 3- Power Supply

5. Write down in your notebook features the basic components.

1. Consider the quick reference to the components in section **Explorer.**
2. Use mode **Test** to test your ability to assemble a desktop computer from starch. You must still follow the layers of access, however you will not receive any instruction.

Control questions:

1. The place of the computer in the sciences?
2. What is the address of memory organization?
3. What is associative memory organization?
4. What is a stack of memory organization?
5. How is memory speed?

Practical class № 4
«MicrosoftWord as a word processor. Inserting pictures, creation graphical objects»
Objectives: todevelop skills as using graphical objects, such as OLE technologies.

Creation pictures in Word. These are the basic types of graphics that you can use to enhance your Word documents: drawing objects, SmartArt, charts, pictures, and clip art. Drawings refer to a drawing object or a group of drawing objects. Drawing objects include shapes, diagrams, flowcharts, curves, lines, and WordArt. These objects are part of your Word document. You can change and enhance these objects with colors, patterns, borders, and other effects. (Наленте управления: **Insert tab(Вкладка Вставка)⇒Illustrations group(Группа элементов Иллюстрации)⇒ Shapes objects (Объект Фигуры)).**

Group selected shapes. Select several shapes at a time by pressing CTRL on your keyboard and clicking each shape you want to include in the group. On the **Format tab (Вкладка Формат)** in the **Arrange group(Группа элементов Упорядочить)**, click **Group (Группировать)** so that all of the shapes will be treated like a single object. To cancel the groupselectyourobjectandclick**Group (Группировать)⇒Ungroup (Разгруппировать)**or use context menu.

Pictures can be inserted (or copied):

1. from other applications (for example.,Paint, MsDrawing,Paintbrush and et.)
2. Drawing objectincurrentdocument (using **Shapes objects**).
3. Using **Clipart** or Online pictures.

After you have inserted a picture or drawing object into a Word document, you can use a variety of tools to position the item relative to the page and text.

Picture position in text.

1. Selectyourpicture, thenopenthe**Formattab (Вкладка Формат)**.
2. Click on**Wrapping Text (Обтекание текстом)**. Click the wrapping position that you want to apply.

OLEtechnology. The main differences between linked objects and embedded objects are where the data is stored and how you update the data after you place it in the Word file.

You place either a link to the object or a copy of the object in the document. You can insert objects this way from any program that supports the technology of linking and embedding objects (object linking and embedding, or OLE).

For example, a monthly status report may contain information that is separately maintained in an Excel worksheet. If you link the report to the worksheet, the data in the report can be updated whenever the source file is updated. If you embed the worksheet in the report, your report contains a static copy of the data.

1. Embedded object
2. Linked object
3. Source file

Linked objects. When an object is linked, information can be updated if the source file is modified. Linked data is stored in the source file. The Word file, or destination file, stores only the location of the source file, and it displays a representation of the linked data. Use linked objects if file size is a consideration.

Linking is also useful when you want to include information that is maintained independently, such as data collected by a different department, and when you need to keep that information up-to-date in a Word document.

Embedded objects. When you embed an Excel object, information in the Word file doesn't change if you modify the source Excel file. Embedded objects become part of the Word file and, after they are inserted, they are no longer part of the source file.

Because the information is totally contained in one Word document, embedding is useful when you don't want the information to reflect changes in the source file, or when you don't want the document recipients to be concerned with updating the linked information.