Dr.SNS RAJALAKHMI COLLEGE OF ARTS AND SCIENCE

(AUTONOUMOUS)

DEPARTMENT OF COMUTER APPLICATIONS

Course Name & Code	**: OPEN ELECTIVE (DESKTOP PUBLISHING-16UCA602)**
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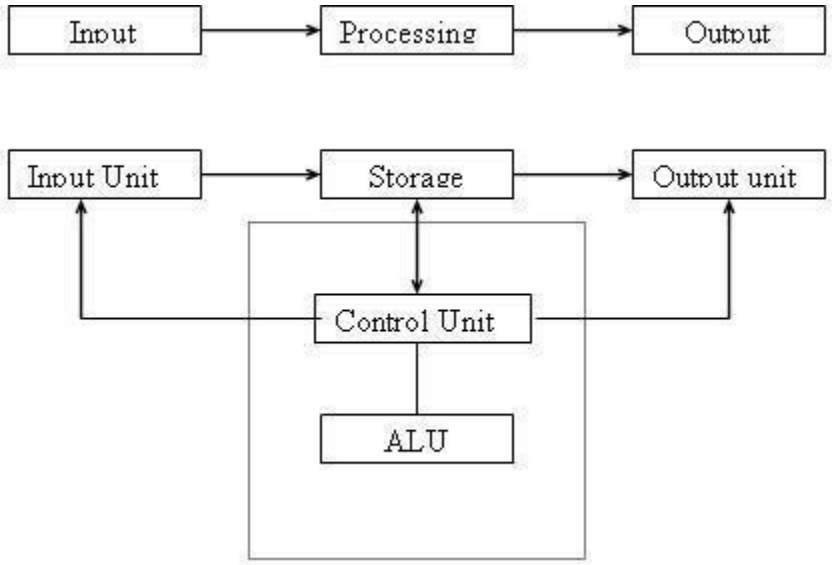
UNIT-IV

BLOCK DIAGRAM OF COMPUTER :



A computer can process data, pictures, sound and graphics. They can solve highly complicated problems quickly and accurately.

VON NEUMANN ARCHITECTURE

Most of today's computers designs referred to as Von Neumann Architecture, are based on concepts developed by John Von Neumann.

This design has five units to perform operations on data namely,:
INPUT
MEMOR
Y
OUTPUT
ARITHMETIC & LOGICAL
UNIT CONTROL UNIT
The Arithmetic & Logical Unit, and the CU built together are known as the CPU.

I. INPUT UNIT:

Computers need to receive data and instruction in order to solve any problem. Therefore we need to input the data and instructions into the computers. The input unit consists of one or more input devices. Keyboard is the one of the most commonly used input device. Other commonly used input devices are the mouse, floppy disk drive, magnetic tape, etc. All the input devices perform the following functions.

- Accept the data and instructions from the outside world.
- Convert it to a form that the computer can understand.
- Supply the converted data to the computer system for further processing.

II. STORAGE UNIT:

The storage unit of the computer holds data and instructions that are entered through the input unit, before they are processed. It preserves the intermediate and final results before these are sent to the output devices. It also saves the data for the later use. The various storage devices of a computer system are divided into two categories.

Primary Storage: Stores and provides very fast. This memory is generally used to hold the program being currently executed in the computer, the data being received from the input unit, the intermediate and final results of the program. The primary memory, RAM, is temporary in nature(Volatile). The data is lost, when the computer is switched off. In order to store the data permanently, the data has to be transferred to the secondary memory. The cost of the primary storage is more compared to the secondary storage. Therefore most computers have limited primary storage capacity.

2. Secondary Storage: Secondary storage is used like an archive. It stores several programs, documents, data bases etc. The programs that you run on the computer are first transferred to the primary memory before it is actually run. Whenever the results are saved, again they get stored in the secondary memory, ROM. The secondary memory is slower and cheaper than the primary memory. Some of the commonly used secondary memory devices are Hard disk, CD, etc.,

MEMORY SIZE:

All digital computers use the binary system, i.e. 0's and 1's. Each character or a number is represented by an 8 bit code. The set of 8 bits is called a byte.

A character occupies 1 byte space.

A numeric occupies 2 byte space.

Byte is the space occupied in the memory.

The size of the primary storage is specified in KB (Kilobytes) or MB (Megabyte). One KB is equal to 1024 bytes and one MB is equal to 1000KB. The size of the primary storage in a typical PC usually starts at 16MB. PCs having 32 MB, 48MB, 128 MB, 256MB memory are quite common.

III. OUTPUT UNIT:

The output unit of a computer provides the information and results of a computation to outside world. Printers, Visual Display Unit (VDU) are the commonly used output devices. Other commonly used output devices are floppy disk drive, hard disk drive, and magnetic tape drive.

IV. ARITHMETIC LOGICAL UNIT:

All calculations are performed in the Arithmetic Logic Unit (ALU) of the computer. It also does comparison and takes decision. The ALU can perform basic operations such as addition, subtraction, multiplication, division, etc and does logic operations viz, >, <, =, 'etc. Whenever calculations are required, the control unit transfers the data from storage unit to ALU, once the computations are done, the results are transferred to the storage unit by the control unit and then it is send to the outputunit for displaying results.

V. CONTROL UNIT:

It controls all other units in the computer. The control unit instructs the input unit, where to store the data after receiving it from the user. It controls the flow of data and instructions from the storage unit to ALU. It also controls the flow of results from the ALU to the storage unit. The control unit is generally referred as the central nervous system of the computer that control and synchronizes its working.

VI. CENTRAL PROCESSING UNIT:

The control unit and ALU of the computer are together known as the Central Processing Unit (CPU). The CPU is the brain of the computer and performs the following functions:

- It performs all calculations.
- It takes all decisions.
- It controls all units of the computer.

A PC may have CPU-IC such as Intel 8088, 80286, 80386, 80486, Celeron, Pentium, Pentium Pro, Pentium II, Pentium III, Pentium IV, Dual Core, and AMD etc.

The scanner is an input device used to read data or information from different sources. The sources or maybe a written document, graphics, price tag even a photograph, etc. The scanner used to read data from different sources and convert them into a form that can understandable by the computer.

Basically there are two types of scanners

1. Optical Scanner
2. Optical Reader
3. Optical Scanner

An optical scanner also known as a scanner.it used light technology to send input.it is used to read or scan information from printed text and graphics translate them into digital form.

The image scanned by the scanner can be used for different purposes

- It can be printed in the paper
- It can be displayed on the monitor

- It can also be sent to anyone through the mail
- It can also be posted on a web page
- It can also be saved for future used

The image scanner has a resolution of 300 or 600 dpi. The resolution describes the sharpness of an image. If the scanner provides high resolution the image will be more clear and brighter. The quality of the image depends upon the resolution of the scanner.

A large number of dots produce batter quality but also create a huge file sizes.

A professional scanner usually scans at 1200 dpi or higher.

Many scanners also provide optical character recognition (OCR) software is used to read images and convert into digital form and can be edited in a word processor.

Types of Optical Scanner

Different types of an optical scanner are as follow

Flatbed Scanner

A flatbed scanner is also known as an image scanner.it works the same as a photocopy machine. It inputs one page at a time. The image can be scanned is placed on the glass surface and the scanner reads the image.it mostly used in homes and offices etc.

Sheetfed Scanner

A Sheetfed scanner works the same as flatbed scanner bur documents are inserted on the top of the scanner the same as a fax machine. This design of the scanner decreases the cost and required of space.it also provides automated sheet feeding. However, this feature also prevents the device from scanning bound-book pages or other documents thicker or larger than a sheet of paper.

Handheld Scanner

A handheld scanner is a portable type of scanner.it is also known as Half Page scanner because it only scans 2 to 5 inches at a time. These types of scanner are useful in scanning a small amount of data. This scanner is moved by hand over the image to be scanned. These are designed to scan short lines like small web addresses. Some types of handheld scanner used to try to keep the scanner moving in a straight line.

Photo Scanners

Photo scanner specially designed for scanning large images. These types of a scanner are more expensive than other types of scanners. These types of scanner provide high resolution and provide a high-quality image. Photo scanner usually comes along their own special types of software and also provides an adapter that allows you to work with slides and negatives. *Photo scanners* are smaller than other *scanners* but provide high resolution. A typical *photo scanner* is the same as a sheet-fed *scanner* that can *scan* 3×5-inch or 4×6-inch photographs at 300 dpi or higher resolution.

Multifunctional Scanner Printer Copier

This is also known as a multifunctional printer; this is basically providing a printer, scanner, and copier all in one. It is useful if you do not need a high resolution of images. They also come with many faxing capabilities. These are mostly used in offices. The software is helpful in scanning an image or documents.

Optical Reader

The optical reader used light to read images, documents and convert them into digital form.

Types of the optical reader

Optical Character Recognition (OCR)

Optical character recognition is a technology that used to read handwritten, printed or typewritten characters from documents. It converts the image into a form that the computer can easily understand. It is mostly used in a department store to read price tags by using light.

OCR devices used to read printed characters using an OCR font. The most commonly used OCR font is OCR-A. An OCR device specifies the size and shape of character by detecting a pattern of light and dark.

Optical Mark Recognition (OMR)

OMR stands for optical mark recognition. It is also known as the mark sensing device. These used light beam technology to read data or character than convert them into digital signals. These signals send into a computer for further processing. These devices are used to read a character printed in circles and rectangles and printed in a special format.it is mostly used in multiple-choice sheets such as SAT and GRE. The student answer the question by filling the circles. The OMR devices are used to read these circles and evaluate them.

Bar Code Scanner

Bar code scanner used a laser beam to read bar codes, Bar codes consist of vertical lines and spaces of different width. Bar code used to represent data that specify the manufacture of products.

Different products like pharmacy, supplies, groceries, vehicles, mail, books and magazines contain bar codes. The most popular bar code is POSTNET used by the U.S . Postal services and Universal Product Code is used by retail stores.

Magnetic-Ink Character Recognition Reader (MICR)

Magnetic-Ink character recognition reader is used to read the printed text by using magnetized ink. It is mostly used by banks for check processing. Each check has MICR character at the lower left edge.

This character used to represent bank number, account number, and check number.

Changing the Print Resolution

Use the following procedure to change the print resolution for printers that support multiple resolutions.

Resolution is measured in the number of dots that can be printed per inch, or dpi.

The higher the value, the higher the resolution and detail in which the image is rendered. However, printing takes longer. For faster printing use lower resolutions.

Note:

- If you print large-sized or high-resolution images, the printing might not be processed due to low memory. In this case, select a lower print resolution than the one you selected.

1. Open the printing preferences dialog box after creating a document in an application.
2. Click the **Print Quality:Standard** menu on the **Detailed Settings** tab.
3. In the **Resolution:** list, select a resolution.
4. After making any other necessary settings, click **OK** to close the printing preferences dialog box.
5. Start printing.

Guidelines on Seminar Presentations

Your main goal in presenting this seminar is to **communicate** your topic to an audience of **mixed backgrounds and interests**. This should **not** be a technical paper such as would be presented at a professional meeting. Your seminar **should** tell a scientific story in a way that **everyone present can understand** and go home with some **lesson learned**.

Purpose of Seminar:

A presentation concentrates on teaching something to the audience. A **good** presentation means that the audience understood the message. The first rule is to place yourself in the mind of your audience. The second rule is to provide the minimum amount of information to the audience; this helps overcome the temptation to fill presentations with details meant to impress the audience. So, make sure to:

- Try not to cover so many ideas, stick instead to a **major theme**.
- Focus on what the audience needs to know about the subject and not on what you want to tell them.
- Don't give too many experimental details unless the method is the main point of the talk.
- For each set of data, explain the significance of the findings, don't just only show it.
- Don't assume that the audience will know what you mean.
- Make transitions from one topic to another logical and smooth: "now I'd like to tell you…"

- Unlike a written report, the audience must be able to immediately grasp the information. So, keep it simple.
- Use repetition as a tool to help the audience remember important points.

Audience Analysis:

Remember that your audience will be scientifically literate but **will not** automatically understand terms, jargon, abbreviations, and methods used in all fields. When planning your seminar, put yourself in their shoes.

Explain all terms and concepts that are important for understanding your topic and will be used throughout your presentation.

Ask yourself:
What do they know?
What do they want to know?
What do they need to know in order to understand my presentation?
Use the answers to these questions to guide how you present your seminar.

Title

Make your title descriptive, succinct, informative and interesting.

Visual aids:

A visual aid is something your audience can see that **aids your speech content**. Always look and talk to the audience, **NOT** to the visual aid. **Don't read** directly from the slides; you will lose eye contact with the audience and run the risk of putting everyone to sleep because they can read faster mentally than you can verbally.

Animation is good and beneficial as long as it does not get too distracting.

» *Font, color, background*

Decide what font, colors, graphics, background design and layout to use for your entire presentation. While you can use variation, **strive for consistency**: titles should be the same color, bullets should be the same color and shape, etc…Visual aids can be created using almost any color, but there should be enough contrast between foreground and background elements and too many colors can distract from the message. If you want to use graduated backgrounds, keep them subtle and smooth.

N.B: Sometimes different computers project colors differently, so make sure to check it out on the big screen before the actual presentation.

» *Size and number of elements*

A limited number of elements, big graphics, and big text make reading easier. "*Less is more and big is beautiful*". It should be big enough to be seen at the end of the auditorium. Nothing aggravates the audience more than not being able to see what the speaker is talking about. Titles should be 36-48 point and text should be 26-36 point (72 points equals 1 inch).
Also, keep similar text the same size from one visual to the next.

» *Use of white space*

Blank areas in a visual help the reader through the data and avoid the appearance of overcrowding. Slides should have enough margins on all sides and eye friendly. Try to keep your slides neat and uncluttered.

» *Text*

Use **short and simple** phrases in place of sentences or paragraphs and limit the amount of information in the presentation. Each visual should be a hint and **not** the whole story. Visuals should have:

- One main point
- One thought per line
- No more than 5-7 words per line No more than 5-7 lines per visual

Use a combination of uppercase and lowercase lettering. **Using all capital is harder to read**. Avoid commas, semicolons, or periods in visuals. Instead, use bullets or numbers to separate and group ideas.

» *References*

You need to give credit to the work of others. Don't forget to include references on your visuals at the bottom in small font.

» *Graphs and tables*

Graphs and tables are the best way to summarize large quantities of raw data.

- Simplify the data
- Show only the essential information
- Be consistent in style and terminology, font, color, style…
- Data elements should be the thickest and the brightest colors. Frames, grid lines, axis lines, and error bars should be lighter in color and weight. X and Y axis lines should end at the last data point
- Include legends.

Proof read visuals, then have someone proof read them for you!! How should the information be organized?

Developing an **outline** is important for a logical flow of ideas as well as serving as a **checklist** for items that appear in the slides per se.

- Introduction and background information (why is the work important? what related

work exists?)

- Objectives of research
- Explanation of methods (what is unique about the presenter's approach?)
- Results
- Discussion and conclusion (did the results meet the objectives?) Relevance or significance, implications of findings (what is the overall scope of the work?)
- Future work (what happens next?)

» *Introduction* (Tell them what you are going to say)

The introduction serves to provide a **focus** (statement of main idea), a **reason to listen** (significance of the main idea), and an **orientation** (division of the presentation). Identify the problem and focus on the scientific observations that led to your research topic. Include some background information.

» *Body* (Tell them)

Choose the story you want to tell then present the data or experiments that are **essential** to your story. Be selective; **don't overwhelm** the audience with volumes of data that may just confuse them. This is **NOT** your thesis defense. Present your results in an **order and organization** that support and maintain the flow of your story and that facilitates understanding, even if that is not the order you used in the laboratory.
Ideally, summarize after you finish each point to wrap up what you've said and connect it to the next argument. Repetition makes the idea stick in the audience's head. Never use a slide unless you give the audience **time to understand** its content. Presenting complex equations or tables "for show" is not useful. Only present material that you can take the time to explain and define.

» *Conclusion* (Tell them what you told them)

Take this time to repeat and **reemphasize** the most important conclusions. Show the significance of your work. Tell them exactly what YOU want them to walk away remembering.

Delivery

Well-done visuals and graphics are important in expressing ideas, and offering results

that escape words. However, it is the oral communication that gives depth and understanding to the visuals.

» *Practice*

Practice is very important for a successful presentation. It allows the speaker to spot flaws and enables smoother transitions from section to section. Try to **rehearse** with an audience of friends; it is the best way to get feedback and constructive criticism. Although you might first develop a script for your presentation, it **should never be read**. If you do use notes or cards during the seminar, try not to obviously read from them. **Know your talk** well enough that you speak out to your audience most of the time and just sneak a peak at your notes periodically to keep you on track.

» *Dress for success*

Look and act **professional**. Develop a confident (but not arrogant) stage presence. Look at your audience and make **frequent eye contact** with them. This conveys an air of confidence and knowledgeability about the subject matter. Avoid doing things that distract the audience such as nervous habits or noticeable repetitive hand motions.

Don't insult your audience or put them in a position of having to admit their ignorance. Don't ask, "how many of you don't know…?"; rather say, "some of you may not know…"

» *Don't be nervous*

"*The internal nervousness most speakers feel during presentations is usually **not seen externally***". It is a good idea to visit the auditorium and **practice before** your seminar. The familiarity with the environment is comforting. Also, get used to having the slides behind you and to looking at both very bright lights and very dark spaces. Practice how far your voice can project and whether slides are legible from a distance.

» *Don't speak too fast*

During an oral presentation, the speaker is in charge of speed control. **Sentences should be short** and main points should be repeated to aid memory and understanding. Your voice should be clear and your pace should vary according to the audience's familiarity or unfamiliarity with the subject. **Show excitement** by varying your voice pitch and tone. "Time practice" will tell you how much material can be presented in the

time allotted. **Never try to include more information by speaking faster**.

» *Don't be boring*

Enthusiasm is contagious. If the speaker shows excitement for the topic, the audience will listen attentively. Listeners can **absorb only a few points** during a 20-30 minutes presentation. Concentrate on what is
ignificant and avoid intricate mathematics that are not critical to the presentation.

» *Handling questions*

During practice sessions, ask colleagues to pose what they feel might be typical questions. Keep your **answers short and to the point**. Preparing extra slides for anticipated questions is also a good practice. Never get into a power struggle with someone in the audience. Appropriate responses might be: "we have not performed those experiments yet", or "that is a very interesting idea; we'll have to give that some thought". If an answer will take an unreasonable period of time, say that you would be happy to discuss it after the session.