

Basic computer architecture

Course Code: CSC 1101

Course Title: Introduction to Computer Studies



Dept. of Computer Science
Faculty of Science and Technology

Lecturer No:	04	Week No:	04	Semester:	Spring 21-22
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Lecture Outline

- ❖ Basic Computer Architecture.
- ❖ Chapter-3,4 IT Essentials.
- ❖ Academic honesty

Specific Objectives

Will have a discussion on,

- ❖ Types of Computer: Based on Size and Power
- ❖ Processor
- ❖ Memory
- ❖ CPU and peripherals
- ❖ Storage devices
- ❖ Desktop computer & Portable computer architecture
- ❖ Computer power & Computer specification
- ❖ Operating systems
- ❖ Discussion about Academic honesty, AIUB policies about disciplinary cases, and probable Impact on academic life.

Types of Computer: Based on Size and Power

- Supercomputer- The most powerful type of mainframe
- Mainframe- large, very powerful, multi-user and multitasking
- Minicomputer- smaller than a mainframe, powerful, multiuser, multitasking
- Personal computer- For single user.
 - Has three types: Desktop computer, workstation and portable

Processor

- ✓ The processor is the most important part of the computer.
- ✓ It processes the data and controls the computer.
- ✓ Powerful computers used as servers often have more than one processor.

Memory

➤ **There are two types of memory:**

➤ **RAM (random access memory):**

- It holds the program instructions and the data that is being used by the processor.
- It loses its contents when power is turned off.

➤ **ROM (read only memory):**

- It holds the program instructions and settings required to set up the computer .
- It does not lose its contents when power is turned off.

CPU and its Peripherals:

- Memory + processor = CPU (central processing unit)
- Sometimes the processor itself is called the CPU.
- Peripherals: other parts that are connected to the CPU such as:
 - Input devices and output devices.
 - Storage devices and
 - communications device

Storage Devices

- Storage devices are pieces of equipment used for reading from and writing to a storage medium.
- Examples: Magnetic tape, floppy disks, hard disks, CD-ROMs, CD-R disks, CD-RW disks and DVDs.

Desktop Computer Architecture:

- In a desktop computer, the CPU and storage devices are normally built inside a system unit which consists of a metal chassis enclosed in a flat desktop or a tower shaped case.
- Other peripherals are attached to the system unit by cables. Each peripheral uses its own driver card or controller.
- An expansion card that is plugged into special expansion slots in the system unit

Desktop Computer Architecture (Cont.)

- Expansion cards contain the electronics required to communicate with and control the device e.g. video or graphics cards are used for monitors, sound cards are used for audio input/output and NICs (network interface cards) are used for connecting to other computers in a network.
- Extra memory can also be added to the computer using special memory expansion slots inside the computer

Portable Computers Architecture

- A portable computer that does not have enough space inside to fit expansion cards may use an external device called a port replicator to provide connections for peripherals.

Computer Power

- When comparing computers, the power of the computer is important.
- It is determined by the speed and capacity (size) of each part of the computer.
- Speed is measured in hertz (Hz) i.e. cycles per second.
- Capacity is measured in bytes (B) where
 - 1 byte = 8 bits (binary digits)

Computer Specifications

- When specifying a computer, the following are normally quoted:
- Processor speed (MHz- megahertz, GHz- gigahertz)
- Memory capacity (MB- megabytes, GB – gigabytes)
- Hard disk capacity (MB- megabytes, GB – gigabytes)
- Optical storage devices speed e.g. CD-ROM, DVD
- Display monitor size (measured in inches diagonally across the screen surface)

Computer Specifications

- Resolution : the monitor image quality given by the number of pixels (picture elements) that are used across and down the screen e.g. 800 X 600, or by the graphics standard used e.g. VGA (video graphics array), SVGA (super video graphics array)
- The graphics card memory size (MB – megabytes, GB – gigabytes)
- Modem speed (measured in kbps – kilobits per second)

Operating Systems

- Communication is provided between applications programs and computer hardware by a set of programs called the operating systems e.g. Microsoft Windows, MacOS, Linux.

IT Essentials

Chapter 3,4



- The module is available on CISCO account.



Academic Honesty

Whaddya mean all my
facts are **wrong?!?**

I copied
everything
straight off the
internet!!



Reasons Behind Academic Dishonesty



Desire to get a good grade



Belief they will not get caught



Fear of Failing



Disinterest or poor time management



Confusion about current university policies

Forms Of Academic Dishonesty



Plagiarism

Fabrication

Cheating

Plagiarism



- ❑ The inclusion or use of someone else's word, idea or data as one's own work, without giving credit or quotations or acknowledging the source.
- ❑ Copying or allowing another student to copy a computer file with another student's assignment and submitting it, in part or fully as one's own.



Fabrication

- Submitting as your own, any academic work prepared totally or in part by another person.
- Submitting falsified, invented or fictitious data or information.
- Citing information that is not taken from the indicated source.
- Listing sources in the bibliography that are not used in the assignment, essay or exercise.
- Copying another student's test answers.

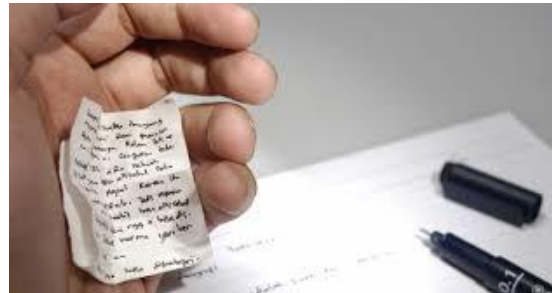


Cheating



- ✓ Collaborating on a test, quiz or project with another person(s) without authorization.
- ✓ Using electronic instruments (cellphones, pagers, tablets, etc.) to obtain, transmit or share information when forbidden.
- ✓ Participating in tests or other academic activities using the name of another student or allowing someone else to participate for oneself.
- ✓ Copying from another student's test.

Cheating



Avoiding Academic Dishonesty



Follow the guideline



Cite what you use



**Use quotation marks or acknowledge
the source**



Submit your own work



Remember three principles

Three Principles



- ✓ When you said you did the work yourself, you actually did it.
- ✓ When you rely on someone else's work, you cite it.
- ✓ When you present research materials as data, documents etc, you present them fairly and truthfully.

Citation/Reference



DIFFERENCE BETWEEN A CITATION & A REFERENCE-

CITATION - A quotation form or reference to a book, paper or author, especially in a scholarly work. It is a specific source that you mention in the body of your paper.

REFERENCES – An alphabetical list of the sources that you have cited (books and other sources) in your report, paper, essay, etc. It comes at the end of your paper and it is meant to show the reader that you have a source for your information.

University Policy



If any student is caught cheating during any exam, he or she will have to face the disciplinary committee of AIUB.

- ☐ First the student is required to fill up a form with his/her parent's contact number & address so that the committee can call the parents & send a letter to that address.
- ☐ Then the student will get a chance to defend himself/herself by writing an application to the committee.
- ☐ Later on the Disciplinary Committee shall decide whether the student should get F grade or another chance by seating for a Set B exam.



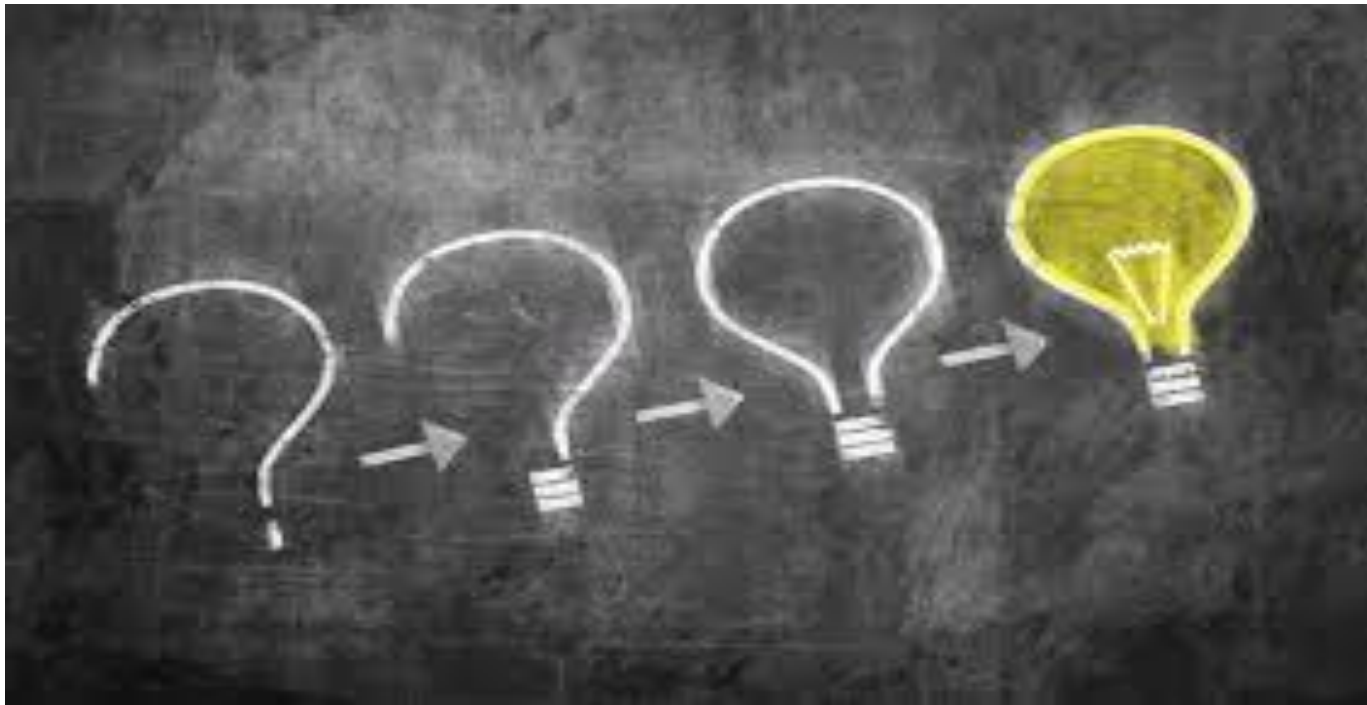
The university reserves the right to take any appropriate disciplinary action in the case of any student who conducts anything by himself/herself which is contrary to the standards of the university.



**“It’s better to lose
with honesty & dignity
than win by cheating.”**

James Parker

Questions?



Books

- i. Computer Fundamentals by Pradeep K. Sinha & Priti Sinha
- ii. http://mycsvtunotes.weebly.com/uploads/1/0/1/7/10174835/computer_fundamental_complete-i.pdf

References

- <https://www.phy.ornl.gov/csep/ca/node2.html>
- <http://tutorials.jenkov.com/introduction-to-programming/computer-architecture.html>