



UG-ARTWORKS:

INTRODUCTION TO COMPUTER SYSTEMS COURSE-HACK

1.BASICS OF COMPUTERS

a. COMPUTERS

i. Is an electronic device that receives data (input), processes it and produces information (output) e.g laptops used for farm data analysis at LUANAR.

b. DATA

i. This refers to the raw facts and figures e.g students marks, rainfall amount data.

c. INFORMATION

i. This is the processed, meaningful data e.g Average rainfall per district, passing percentage of students.

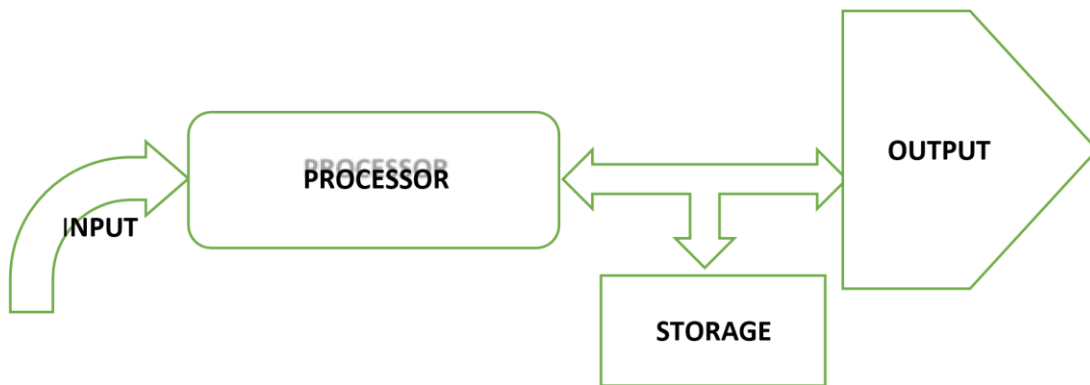
d. INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

i. In this field, the technology is used to store, process and transmit

information

e.g online LUANAR registration system ,WhatsApp messaging between students.

NB: Computers work by receiving data (input), processes it, produces information (output) and stores it in storage. Graphically:



2.COMPONENTS OF A COMPUTER SYSTEM

a. **HARDWARE**

- i. These are physical parts you can touch e.g keyboard, mouse, monitor

b. **SOFTWARE**

- i. These are instructed programs that tell computers what to do e.g browsers, whatsapp messenger

c. **USERS**

- i. Individuals who operates computers e.g students, lectures,

technicians

d. DATA

- i. Raw facts and figures used by computers as inputs e.g exams results to put on students' portal, students IDs

e. PROCEDURES

- i. instructions on how to use the system e.g Login steps, file saving methods

NB: The computer systems comprises of hardware, software, users, data and procedures

3. TYPES AND CLASSIFICATION OF COMPUTERS

a. OPERATING PRINCIPLE

- i. This differentiates digital (0s and 1s) and analog (countinuous waves) operating principles

b. SIZE OF COMPUTER

- i. This categories computers according to their size starting from microcomputers (PC), mini-computers (mid-size), main-frame (e.g servers)

c. PROCESSING POWER

i. This groups computers according to processing power and might be similar to size i.e micro-computers (has little processing power), minicomputers (has mild or moderate processing power), mainframe computers (handles large data that means larger storage and processing power), supercomputers (very powerful, used for scientific work).

○ EMBEDDED SYSTEMS

✦ These are devices that have built-in instructions or programs

NB: These focus more on PC and mainframe differences

4. COMPUTER HARDWARE COMPONENTS

a. INPUT DEVICES

- Used to enter data into computer e.g keyboard, mouse, scanner, microphones, touchscreen

b. OUTPUT DEVICES

- Display or produces results e.g monitor, printer, speaker

c. PROCESSING UNIT (CPU)

- Brain of computer that processes data e.g intel processor

d. STORAGE DEVICES

- Saves data permanently e.g hard drive, Digital Versatile

Disk(DVD), compact disks(CD)

e. MEMORY (RAM/ROM)

○ Temporary and permanent data storage e.g RAM for temporary storage which helps in quick running of programs; ROM for permanent storage which stores boot information

NB: *Central processing unit consists of:*

- a. Control unit: makes sure all processes work*
- b. Arithmetic and logical unit: performs math calculations (-/+) and make decisions*
- c. Memory unit: stores the instructions waiting to be executed or processed*

5. COMPUTER SOFTWARE

a. SYSTEM SOFTWARE

- i. Runs and controls the hardware e.g operating system (windows, linux)*

b. APPLICATION SOFTWARE

- i. Performs a specific task e.g Microsoft word, browsers, instagram*

c. UTILITY PROGRAMS

- i. Helps maintains system e.g Antivirus, back-up software.*

d. PROGRAMMING SOFTWARE

i. Used to create other programs e.g *python,java,c++*

NB: *Software is the invisible engine that drives hardware.*

6.OPERATING SYSTEMS (OS)

i. it is the main software that controls the computer.

FUNCTIONS OF OPERATING SYSTEM

- Booting ○ For starting the computer system e.g turning on a laptop
- File management ○ Organising files and folders e.g documents ,pictures and folders
- Resource allocation ○ Handles the sharing cpu and memory among programs e.g running games (dream league) and running music player at once
- Users interface ○ Hnadles communication between user and system eg GUI(graphical user interface) for example icons and command line interface for example windows dos command prompt

NB; Common OS in Malawi is windows for computer and mac OS ,linux

7. COMPUTER NETWORK AND INTERNET

○ NETWORK

- Connection of two or more computers sharing data eg LUANAR campus WI FI

- LOCAL AREA NETWORK(LAN)
 - Covers small area e,g computer lab network
- WIDE AREA NETWORK(WAN)
 - Covers large area , multiple locations e.g internet ,government network
- INTERNET
 - Global network of computers e.g email ,E learning
- INTRANET
 - International organisational network e.g *LUANAR STAFF WI FI*
- MODEM
 - Device connecting computer to internet eg *router or use modem*

NB: *Network is communication plus connecting and sharing*