

INTRODUCTION COURSES

During this book **DBSICTNC IS Basic Digital Skills about Information Communication Technology and Networking Courses**, the student was able to proficiently: Using Microsoft Word, Microsoft Excel, Mobile Smart phone to access Internet. Select the appropriate computer components to build, repair or upgrade personal computers. Explain how to correctly use and safely work in a lab. Install components to build, repair, or upgrade personal computers. Explain how to perform preventive maintenance and troubleshooting on personal computers. Install Windows Operation Systems. Perform management and maintenance of Windows Operating Systems. Configure computers to communicate on a network. Configure devices to connect to the Internet and Cloud services. Explain how to use, configure, and manage laptops and mobile devices. Explain how to configure, secure and troubleshoot mobile, OSX, and Linux operating systems. Install and share a printer to meet requirements. Implement basic host, data, and network security. Explain the roles and responsibilities of the IT professional. Troubleshoot advanced hardware and software problems. The DBSICTNC book has fifteen (15) chapters.

Using the book like this:

- Before the student starts to learn the chapter tries to collaborate with other and ask what is difficult for you. Talk about the problems and try to identify the solutions which help the society.
- Let the youths read and learn theory and try to practice the courses in their own groups.
- Let the students look at the end of each chapter there are some questions and activities for them to do, to help them understand and enjoy the better courses.
- Above all, this will make them interested in reading. They will want to learn Technology for themselves, and so become independent in Information communication Technology.

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Chapter I: INTRODUCTION TO THE PERSONAL COMPUTER

Introduction: This chapter introduces the components that comprise a personal computer system and how to consider upgrading components. Much of the content in this chapter will help you through this course, after starting the window the first background that you see is the **DESKTOP**. The several small pictures called **ICONS** are located default on the left side of the desktop. The icon represents an object, folder, or program. The computer user can drag any icon to the new location on the desktop used **MOUSE**.

Information technology encompasses the use of computer network, hardware and software to process, store, transmit and retrieve information. A personal computer system consists of hardware components and software components. The computer case and power supply must be chosen carefully to support the hardware. Inside the case and allow for the addition of components. Internal components of a computer are selected for specific features and functions. All internal components must be compatible with the motherboard.

Use the connection type of part and keyboard, mouse, touch screen and digital camera. Typically output devices include monitor, printers and speakers. Case power supplies the CPU and cooling system. RAM, hard drive and adapter card must be upgraded when devices fail or no longer meet customer needs. Specialized computer hardware specific to their function. The type of hardware used in specialized computers is determined by how a customer works and what a customer wants to accomplish.



MOUSE is the pointing device to be held by one hand. The traditional mechanical mouse has a detection device (ball) on the button, which enables the user to control the motion on the screen pointer cursor by moving it on. On a flat surface, the mouse enables the user to give instructions to the computer. The most mice have two buttons: **the left and right button**, other mice may have a third button which is usually the scroll button or scroll wheel. The

mouse has an arrows pointer on the screen that can change shape when the mouse is moved the pointer moves on the screen.

ICONS: are images used to present information of the computer. An icon can be used to represent the files folder or program the commonest icon on the desktop are:

My document: stores all files for examples: letters, reports and other documents created by the user.

My computer: Displays all resources available on the computer for examples: disk drives such as CD drive, Pointer etc.

Recycle Bin: Stores files and folders that have been deleted until they permanently deleted from computer.

Internet Explores or Mozilla Firefox: Provided the personal computer (PC) has access to the Modem and Internet Service Provider (ISP). When activated program enable access to information and Website on the internet

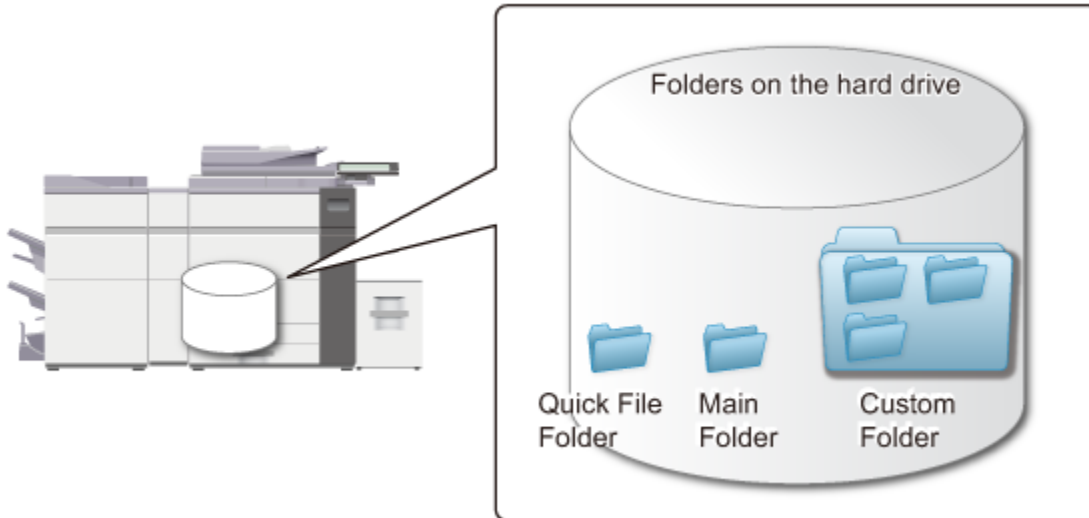
The definition of a folder

A folded cover or large envelope for holding or filing loose papers: an organizational element of a computer operating system used to group files or other folders together

The meaning of folder in computer

In computers, a folder is the virtual location for applications, documents, data or other sub-folders. Folders help in storing and organizing files and data in the computer. The term is most commonly used with graphical user interface operating systems

The document filing function can save data in the following three (3) folders on the HDD.



Quick File Folder: Tap the [\[Quick File\]](#) key to save the scanned data in this folder. A user name and file name are automatically assigned to each job, Tap the [\[File\]](#) key to save the scanned data in this folder.

Main folder: You can use a previously registered user name and set a file name when saving-data.

You can protect a file with password ("Confidential" file saving) as required.

Custom folder: You can name a folder and store it in the custom folder. When you tap the [\[File\]](#) key, data is scanned and saved in the registered holder. Similar to the Main folder, you can use a previously registered user name and set a file name when saving data, when you register a folder and a file to save, you can protect them with password.

Read-only memory, or ROM, is a type of computer storage containing [non-volatile](#), permanent data that, normally, can only be read, not written to. ROM contains the programming that allows a computer to start up or regenerate each time it is turned on. ROM also performs large input/output ([I/O](#)) tasks and protects programs or software instructions. Once data is written on a ROM chip, it cannot be removed.

Almost every computer incorporates a small amount of ROM that contains the start-up [firmware](#). This boot firmware is called the basic input/output system ([BIOS](#)). This software consists of code that instructs the boot-up processes for the computer -- such as loading the operating system ([OS](#)) into the random access memory ([RAM](#)) or running hardware diagnostics. Consequently, ROM is most often used for firmware updates.

However, ROM is also utilized in video game consoles, allowing one system to run various games. Additionally, ROM is used in [optical storage](#), including different kinds of compact discs such as [CD-ROM](#) and CD-RW. ROM is also used frequently in [calculators](#) and peripheral devices like [laser printers](#), whose fonts are commonly stored in ROM.

Types of ROM

ROM may sometimes be called mask ROM (MROM). MROM is a form of read-only memory that is static and programmed into an included circuit by the manufacturer. Solid-state ROM, the oldest type of ROM, is an example of mask ROM. With the original ROM, since it was truly read-only, it had to be removed and physically replaced in order to change any of its contents.

However, new types of ROM have emerged that are still non-volatile, but can be reprogrammed; these types are categorized as programmable read-only memory ([PROM](#)). PROM can be used to update firmware, such as BIOS, through the utilization of installation software.

Types of PROM include:

- Ultraviolet-erasable ROM (UV-ROM) - ROM whose contents can be erased using ultraviolet light, and then reprogrammed.
- Erasable programmable ROM (EPROM) - A type of ROM that is programmed using high voltages and exposure to ultraviolet light for about 20 minutes.
- Electrically-erasable programmable ROM (EEPROM) - Often used in older computer chips and to control BIOS, EEPROM can be erased and reprogrammed several times while enabling the erase and writing of only one location at a time. [Flash memory](#) is an updated version of EEPROM that allows numerous memory locations to be changed at the same time.

How does ROM work?

ROM is sustained by a small, long-life battery in the computer. It contains two basic components: the decoder and the OR logic gates. In ROM, the decoder receives input in binary form; the output will be the decimal equivalent. The OR gates in ROM use the decoder's decimal output as their input.

ROM performs like a disk array. It contains a grid of rows and columns that are used to turn the system on and off. Every element of the array correlates with a specific memory element on the ROM chip. A diode is used to connect the corresponding elements.

When a request is received, the address input is used to find the specific memory location. The value that is read from the ROM chip should match the contents of the chosen array element.

ROM vs. RAM

Unlike a computer's RAM, the data in ROM is not lost when the computer power is turned off. While the ROM chip is commonly used in the startup operations for the computer, the RAM chip is often used in the recurrent tasks of the computer once the OS has been configured.

Another difference between ROM and RAM is the amount of space they contain. ROM chips can only store several megabytes (MB) of data, usually amounting to between 4 and 8 MB per ROM chip. RAM chips can store multiple gigabytes (GB); this storage often ranges from 1 to 265 GB per RAM chip. 1 GB is considered to be the equivalent of 1000 MBs. Therefore, RAM displays more extensive memory capabilities.

It is almost impossible to operate a computer using only ROM. RAM is necessary to run useful and changeable programs. Therefore, computers must incorporate both forms of memory.

Advantages of ROM

ROM provides the necessary instructions for communication between various hardware components. As mentioned before, it is essential for the storage and operation of the BIOS, but it can also be used for basic [data management](#), to hold software for basic processes of utilities and to read and write to peripheral devices.

Other advantages of ROM include:

- Its static nature means it does not require refreshing.
- It is easy to test.
- ROM is more reliable than RAM since it is non-volatile in nature and cannot be altered or accidentally changed.
- The contents of the ROM can always be known and verified.
- Less expensive than RAM.

Just as we multitask in our daily lives, juggling a long list of must-do activities, our computers also multitask to enable us to check our email, browse the internet, stream movies, and more. To bring us the best computer experiences, components in our computers are built to share the work required to run one or more applications. RAM, which acts like your computer's short-term memory, is one of those key components. If your computer or laptop's RAM doesn't have the right capabilities or capacity, it will function very poorly if it works at all. Read on to learn more about RAM and whether it's time to upgrade.

What Is RAM

RAM is a common computing acronym that stands for random-access memory. Sometimes it's called PC memory or just memory. In essence, RAM is your computer or laptop's short-term memory. It's where the data is stored that your computer processor needs to run your applications and open your files.

Inside your computer, RAM typically comes in the form of a rectangular flat circuit board with memory chips attached, also referred to as a memory module. Computers typically come with at least two RAM modules with room to add more, if needed. These RAM modules are critical components that work hand in hand with your computer's central processing unit (CPU) and must be working optimally for you to have a good experience.

How Computer and Laptop RAM Works

Anytime you play a game from your computer's hard drive or stream a movie from the internet, your computer loads the data that the CPU, or processor, needs for those applications into the RAM. The CPU then uses this memory to perform the complex tasks required to deliver your desired experience.

That's why RAM needs to be fast—faster than the long-term storage offered by your computer's disk drive. The speed of your RAM determines how quickly data flows in and out of your CPU. If your RAM is too slow, you'll spend a lot of time looking at the spinning wheel cursor.

You can think of RAM like your own short-term memory, which helps to store the immediate data you need for tasks like remembering your shopping list as you walk through the grocery store. If you were to lose your short-term memory, you wouldn't be able to remember anything for more than a few seconds. But having more short-term memory would allow you to do additional simultaneous tasks, and those tasks can be more complicated.

Similarly, the higher the RAM memory capacity of your computer, the more quickly your CPU can complete its work, and the smoother your experience will be. RAM also allows you to use demanding applications, such as video editing software, and enables you to open larger files. We'll cover how much RAM you likely need later in this article.

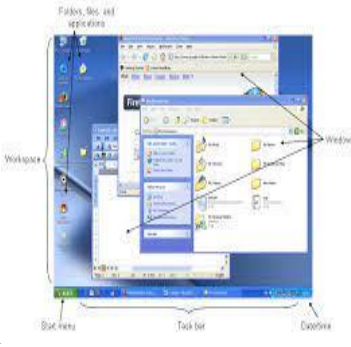
How Is RAM Different than Hard Drive Memory?

It's important to distinguish between RAM (short-term memory) and the long-term data storage on your computer's disk drive, also known as the hard drive. Disk drives whether they are traditional hard disk drives (HDDs) or newer solid-state drives (SSDs) are used for long-term data and file storage. RAM only holds the data you need for the apps and files that are currently open. When you close an app or shut down your computer, the data is cleared out of the RAM. That's why it's important to save your work to your disk drive before quitting.

The components of computer



A



B



C



D



HP LaserJet Printer



E

F



G



H

A: Central Processing Unity

B and D: Screen

C: Keyboard

E: Mouse

F: HP LaserJet Printer

G: EPSON Printer

H: Wireless printer

The peripheral device

Peripheral device: An input and output unit of a system that feeds data into and/or receives data from the central processing unit of a digital device.

Peripheral device and examples



Peripheral devices are those devices that connect to the core computing unit. Four examples of peripheral devices are monitors, mice, keyboards, and printers

The different devices of computer

- **Input device** is device transfer the information inside the computer for examples keyboard, mouse ,camera
- **Intermediate device** is used to transfer the information inside and outside of computer for examples CENTRAL Processing Unit (CPU), Switch, USB.
- **Output device:** is used to transfer the information outside the computer for examples high speaker, monitor (Screen).

5 types of peripherals:



Some common computer peripherals include keyboards, mice, tablet pens, joysticks, scanners, monitors, speakers, printers, external hard drives, and media card readers

The difference between CPU and peripheral devices: The Major Differences are: Peripherals are electromechanically and electromagnetic devices and CPU and memory are electronic devices. Therefore, a conversion of signal values may be needed.

Two component of computer

- **Hardware** is the all parts of computer which are tangible, for screen, CPU, mouse, keyboard, Cables.
- **Software** is the all parts of computer which are intangible, for example applications programs.

Revision

1. What is computer hardware?
2. Can you explain what a motherboard is and its components?
3. How do you identify the different parts of a computer system unit?
4. What are some common peripheral devices that can be connected to a computer?
5. What are the two components of a personal computer?
6. What do you mean by personal computer and explain its components?
7. What are the 7 internal components in a computer?
8. What are the 7 core components for a PC?
9. What are the 3 main elements of computer system?
10. What are the 3 main components of a CPU?
11. What are the 10 major hardware components of a computer system?
12. What are the functions of computer hardware?
13. What are the types of hardware?
14. What is the function of the motherboard?
15. What are the 2 main components of a motherboard?
16. What are the two types of motherboard?
17. What is the meaning of term BIOS?
18. What are the types of BIOS?
19. Is BIOS stored in ROM?
20. What is the meaning of booting?
21. What are the 3 types of booting?
22. What are the 4 stages of the boot process?
23. What is the meaning of folder in computer?
24. Give the three types of folder?
25. Discuss the different between ROM and RAM?
26. What are the 6 steps of the booting process?
27. What is the different between Peripheral and CPU?

CHAPTER II: MICROSOFT WORD

I,1. Introduction Microsoft word

is an application (software) which help the user to write the different documents like letters, reports, books etc. .The Microsoft ward help the students to know how to

I, 2.Creating first document:

Start windows: Switch on your computer beginning by CPU wait that the pointer be stabilized and Click on the “**START**” menu, Place the pointer at the options “**ALL PROGRAMS**” and the programs menu appears select Microsoft **Office/ Microsoft Office Ward**.

Microsoft window for ward will be open at the top of the screen, you see Microsoft ward document 1 appears”. The document “1” is the name of document automatically given by the WORDNOW you are supposed to give the name to your document

Select your document, Click on File, click on save as, Unregister the window will appear on the screen. Options and given name, Delete the default name, Type the name that you want to give the File, select the drive and the target directory “**Folder**” where you want to save the file and then click to “**save**”.

I, 3. The Parts Of the Word Window

The following picture shows the basic parts of the words window has standard windows Scroll bars, the title bar, Zoom boxes, the menu bar, and so on.

It is important to have the good knowledge about these terms and concepts. You may search the terms into help menu for detail. Title bar, Status Bar, Text space, the rules

The menu bar by clicking on the item, it will dropdown the respective command list.

Tool bar each tool bar has same buttons to accomplish defined tasks .the following are the tool bars in words: Standard, Formatting, Borders, Drawing and Database.

Description of the screen parts

1.**Title bar**: it is the top of the screen the title bar tell you the name of document you are working on and the name of program you are working with,

Control menu: click here to pull down menu with options or minimizing, maximizing, moving, and closing the window

Menu bar: the list of menu option file to help you that you choose from to give commands.

Tool bar: the collection of button you click to execute commands to display or move tool bars on choose name on the shortcut menu ,or click view /toolbars and choose from the displayed list.

View buttons: click on these to change your view of the document.

Scroll bar: help you to get from place to place the document.

Status Bar: the status bar gives you basic information about where you are, what you are doing in the document. It tells you what page and section you are in, the total number of pages in the document. And where the in-section point is on the page.

The computer uses position the mouse pointer over an object clicks or double clicks, or right clicks to perform different actions as explained below:

1. **Clicking** is to press down the left mouse button once and release it. Click left button to select the files or object.
2. **Double click:** means rapidly press the left button twice and release it, when an icon is double clicked opens a file
3. **Right click:** means to press the right button secondary mouse button once.
4. **Click and Drag** to mouse files and the folders

Drag and drop (dragging): This the type operation in which the mouse is used to move something from on part of the computer screen to another part other computer screen.

To drag an item on screen: press and hold down the left mouse button over an item while moving it to a given direction on the screen the released it when item is in desired position.

TO POINT: is to move the mouse pointer until it is over a particularly item on the screen

Mouse pointers

The pointer or cursor enables you to select, insert or edit text.

Cross is used to move an object and **Cross hair** (+) r is used to draw lines, boxes and circles.

Mouse can change shape depending on the desk performed.

Enables you to select menu items, icons, and graphics etc.

❖ **Paragraph, Alignment, Numbering Bulleting.**

On the formatting toolbar user can do the following this will affect the whole paragraph

Click on the formatting tool bar for left justify.

Click on the formatting tool bar for center justify.

Click on the formatting tool bar for right justify.

Click on the formatting tool bar for full justify.

❖ **Paragraph Numbering**

Click on the formatting toolbar for automatic paragraph numbering with right intend. They are different s types of numbering available in the system to switch to another type of numbering. Choose format/Bullets and numbering, choose numbered table, and then select the desired numbering type, choose” Ok”.

❖ **Bullet sign with right Intend**

They are different bullets available in the system to switch to another type of bullets.

Choose format/Bullets and numbering.

Choose the bulleted table and select the desired bullet type chooses “Ok “.

❖ **Opening an existing**

Choose file /open and the window will be opened. Choose the target directory.

Choose your target file by clicking on it. The choose open.

❖ **Underline(ctrl+U)**

They are different underline available in the system to switch to another type of underline.

Choose format/ underlines.

Choose the underline table and select the desired line type, Choose “Ok”.

❖ **Subscript(ctrl+=)**

Type what you want to create small letters bellow the text baseline.

Select the letter you want then Click on format/subscript.

For examples: A₂, A₁, A₀

❖ **Superscript** (ctrl+sift ++)

Type what you want to create small letters above the line of text.

Select the letter you want, and then click on format/ superscript.

For examples: 2X⁴-XY³+Y²+6, Ln(x+1)²

❖ **How Insert Table, Picture, Header, Footer**

Click on insert, then choose table insert table or draw table into the document

Choose the number of rows and column. For example, table below:

No	DETAILS	Quantity	Unit price	Total price
1	Rice	1000kg	820frw/kg	820,000frws
2	Wheat	100kg	1000frw/kg	100,000frws
3	Irish potato	2000kg	350frws/kg	700,00frws

How delete any row or column, you choose on erase, hold left click on row or column you want to delete the click “Ok”

Click on insert, choose picture, insert a picture from file, and select a picture you want then click on “Insert”.

Click on insert, click on Header or footer, they are different Header or footer available in the system to switch to another type. Table and select the desired header or footer,

Click” ok”

❖ **How to insert ghosted text behind the content on the page**

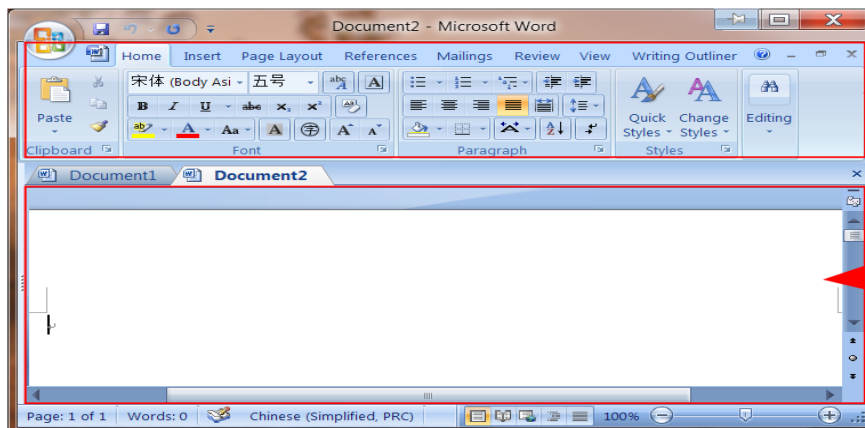
. This is often used to indicate that a document is to be treated specially, such as confidential or urgent.

Click on page layout, choose Watermark, choose custom watermark, delete default watermark/ type the watermark you want /choose color /choose Diagonal or horizontal. /Then click “Ok.

The major parts of Microsoft Word

- Title Bar and Quick Access.
- Word's Ribbon.
- Your Document.
- Status Bar.
- Hidden Features.

The main shortcut you must know when you are using Microsoft Word document How to: Select (ctrl +A), Copy (ctrl +C), Save (ctrl +S), Underline (ctrl +U), Print (ctrl+ P), Increase the font size (ctrl+>), Decrease the font size(Ctrl+<),



When switching between tabs, this window (win API term) doesn't change.

When switching between tabs, the document window changes (window class is '_Wwg').

How can the add-in put two documents into the same parent window, and use tabs to switch between them?

Revision

- 1) How you can connect with cloud service on word 2013?
- 2) How you can insert video in Microsoft Word?
- 3) How you can collapse or expand parts of a document?
- 4) How to edit PDF document in 2013?
- 5) How to add foot-note & end note in word?
- 6) What are the shortcut keys for creating hyperlink
- 7) Describe your background using Microsoft Word?
- 8) How do you insert an image into a document on Microsoft Word?
- 9) How do you add footnotes and endnotes to a document?

10) Describe how you would restrict and allow access to a document for specific people

11) The major parts and functions of Microsoft Word?

12) To create a new folder in windows 10, you press right click on mouse then create a folder Select one:

A. True B. False

Which term is used to describe a network device that relies on another device to obtain information?

A. Server B. Console C. Web server D. Client

13) In Microsoft word, when you want to arrange the selected items by numerical or alphabetical order you click on: A. Organize B. Sort C Arrange D. Orde

14) A user calls you for assistance, he/she is trying to apply a font color to a text in Microsoft word but the text color is not changing what might be the cause:

A). the document is not saved B). The text is in capital letter C). The text is left centered D). The text is not selected

Chapter III: MICROSOFT EXCEL

II₁. The introduction of MS Excel.

It is a spreadsheet program developed by Microsoft. Excel organizes data in columns and rows and allows you to do mathematical functions. It runs on Windows, macOS, Android and IOS. The first version was released in 1985 and has gone **through several changes over the years.**

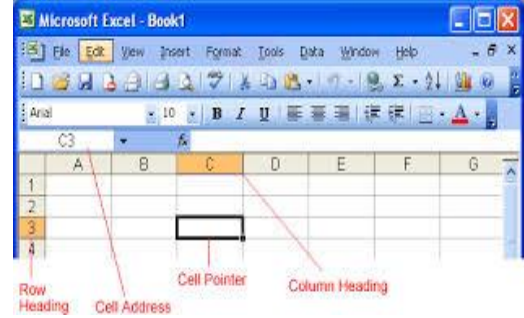
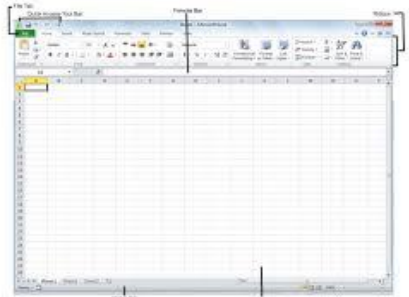
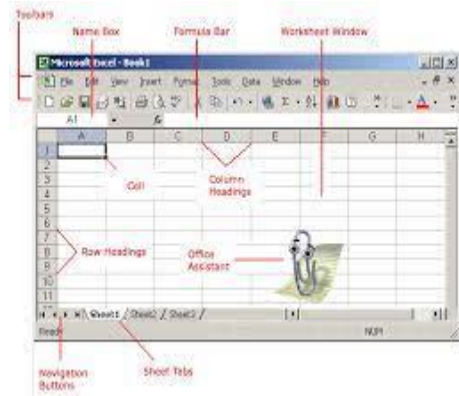
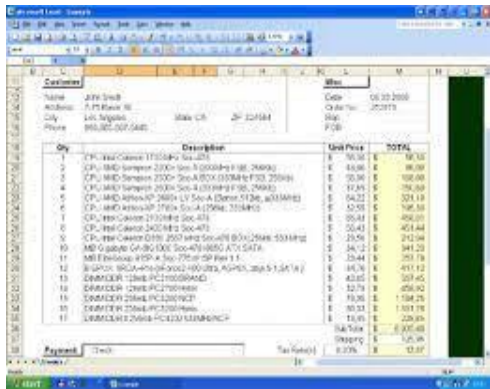
Microsoft Excel **enables users to format, organize and calculate data in a spreadsheet.** By organizing data using software like Excel, data analysts and other users can make information easier to view as data is added or changed. Excel contains a large number of boxes called cells that are ordered in rows and columns.

II₂.Creating first sheet of Microsoft Excel

Start windows: Switch on your computer beginning by CPU wait that the pointer be stabilized and Click on the “**START**” menu, Place the pointer at the options “**ALL PROGRAMS**” and the programs menu appears select Microsoft **Office/ Microsoft Office Excel.**

Microsoft window for Excel will be open at the top of the screen; you see Microsoft Excel sheet 1”appears”. The sheet “1” is the name of sheet automatically given by the WORDNOW you are supposed to give the name to your sheet

Select your sheet, Click on File, click on save as, Unregister the window will appear on the screen. Options and given name, Delete the default name, Type the name that you want to give the File, select the drive and the target directory “Folder” where you want to save the file and then click to save”.



Above image shows Microsoft excel when user open it.

II,3. The most frequently used functions in Excel are:

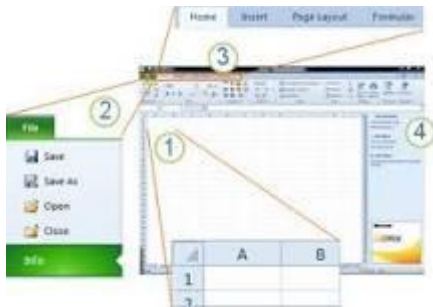
- AutoSum;
- IF function;
- LOOKUP function;
- VLOOKUP function;
- HLOOKUP function;
- MATCH function;
- CHOOSE function;

DATE function;

Uses of MS Excel

- Get Quick Totals.
- Data Analysis and Interpretation.
- Plenty of Formulas to Work with Data.
- Data Organizing and Restructuring.
- Data Filtering.
- Goal Seek Analysis. ...
- Flexible and User-Friendly.
- Online Access

How do I use Microsoft Excel on my computer?



To work with data on a worksheet, you first have to enter that data in the cells on the worksheet. Click a cell, and then type data in that cell. Press ENTER or TAB to move to the next cell. Tip To enter data on a new line in a cell, enter a line break by pressing ALT+ENTER.

How many rows and columns are there in Microsoft Excel 2003 and later versions?

You can see the number of columns, rows, cells for Microsoft Excel version 2003 and later versions in the following table:

Excel Versions	Rows	Columns	Total Cells
MS Excel 2003	65536	256	16777216

MS Excel 2007	1048576	16384	17179869184
MS Excel 2010	1048576	16384	17179869184
MS Excel 2013	1048576	16384	17179869184

Microsoft excel help the user to:

- Display the result of simple calculation, such as Average or maximum value after selected cell.
- Continue a pattern into one or more adjacent cells
- Quickly format a range of cells and convert it to a table by choosing a pre-defined table style.
- Emphasize unusual values and visualize data using data bars.
- Calculation of total Sum, mean, median after selected cell.
- Calculation of percentage after selected cell.

II,4. How to copy and cut in Microsoft Excel

- Click again in that ward.
- Write what you want to copy or cut.
- Clicks ENTER.
- Click right.
- Click on copy or cut.
- Click on sheet where you want.
- Click on paste.

II, 5.How to write the word at different angles

- Type ward you want.
- Click right on mouse.
- Click for format cell.
- Click on Alignment.
- Click on Orientation.

- Type the Degree (angle you want). Then Click “Ok” or ENTER. To insert cells, row or column into the sheet or table.
- Click into the table or sheet where you want to insert cell, row, and column.
- Choose insert.
- Click on cells.
- Choose row or column.
- Click “Ok” **ENTER**.

II,6. MS Excel Interview Questions

There are given top frequently asked MS Excel interview questions and answers that has been asked in many companies. Let's see the list of top Excel interview questions.

1) What is Microsoft Excel?

Microsoft Excel is an electronic worksheet or spreadsheet application which is used for organizing, storing, and manipulating and analyzing data. It is developed by Microsoft.

2) What are cells?

The area where data is stored is known as cell.

3) Does each cell have unique address?

Yes, each cell has a unique address depends on the row and column value of the cell.

4) How can you add cells, rows or columns in Excel?

If you want to add a cell, row or column in Excel, right click the cell you want to add to and after that select insert from the cell menu. The insert menu makes you able to add a cell, a column or a row and to shift the cells affected by the additional cell right or down.

5) How would you format a cell? What are the options?

A cell can be formatted by using the format cells options. There are 6 format cells options:

- Number
- Alignment

- Font
- Border
- Fill
- Protection

6) What is the use of comment? How to add comments to a cell?

Comments are used for a lot of reasons:

Comments are used to clarify the purpose of the cells.

Comments are used to clarify a formula used in the cell.

Comments are used to leave notes for others users about a cell.

To add a comment: Right click the cell and choose insert comment from the cell menu. Type your comment.

7) What does the red triangle indicate at the top right-hand corner of the cell? The red triangle at the top right-hand corner of a cell indicates that there is a comment linked to the particular cell. If you put your cursor on it, it will show the comment.

8) How would you add comments to a cell? To add a comment to a cell, you right click the cell and choose insert comment from the cell menu. Type your comment in the comment area provided. A red triangle at the top right-hand corner of a cell indicates that there is a comment linked to that particular cell. To remove a comment from a cell, right lick the cell and then select delete comment from the cell menu.

9) What are charts in MS Excel?

Charts are used to enable graphical representation of the data in Excel. A user can use any chart type, including column, bar, line, pie, scatter, etc. by selecting an option from Insert tab's Chart group.

10) What is Freeze Panes in MS-Excel? Freeze Panes are used to lock any row or column. The locked row or column will be visible on the screen even after we scroll the sheet vertically or horizontally.

11) Which are the different workbook protection types in Excel?

There are three ways to protect a workbook in Excel:

- Password protection for opening a workbook
- Protection for adding, deleting, hiding and unhiding sheets
- Protection from changing size or position of windows.

12) What is the difference among COUNT, COUNTA, COUNTIF and COUNTBLANK in Ms-Excel?

COUNT is used to count cells containing numbers, dates, etc. any value stored as number excluding blanks.

COUNTA or Count All is used to count any cell value containing numbers, text, logical values, etc. any type of value excluding blanks.

COUNTBLANK count blank cells or cells with an empty string.

COUNTIF and COUNTIFS count cells matching a certain criteria.

13) What is Ribbon?

The ribbon specifies an area which runs along the top of the application and contains menu items and toolbars available in Excel. The ribbon has various tabs that contain groups of commands for use in the application

14) Is it possible to hide or show the ribbon?

You can hide or show (minimize or maximize) the ribbon by pressing CNTRL F1.

15) How to prevent someone from copying the cell from your worksheet?

If you want to protect your worksheet from being copied, go into Menu bar > Review > Protect sheet > Password.

By entering passwords, you can prevent your worksheet from getting copied.

16) How to sum up the rows and column number quickly in the Excel sheet? The SUM function is used to get the total sum of the rows and columns, in an excel worksheet.

17) How can you resize the column?

There are two ways to resize a column:

1. To change the width of one column, drag the boundary on the right side of the column until you find your desirable width.
2. Select the Format from the home tab, and in Format, select the AUTOFIT COLUMN WIDTH under cell section. Click on this to change the cell size.

18) What are the several report formats in Excel?

There are three report formats in Excel:

- Compact
- Report
- Tabula

19) Is it possible to make Pivot table using multiple sources of data?

If the multiple sources are different worksheets from the same workbook, then you can use these multiple sources of data to make Pivot table.

20) How can you check whether the Pivot table is modified or not?

To check whether the Pivot table is modified or not, you should use the "Pivot Table Update" in worksheet containing the pivot table.

21) What does the IF function in Excel?

IF function is used in Excel to check whether certain conditions are true or false, if the condition is true then it will give the result accordingly and if the condition is false the result or output will be different.

22) What filter should we use, if you want more than two conditions or if you want to analyze the list using database function?

You should use "Advanced Criteria Filter" to analyze the list or test more than two conditions.

23) What are the advantages of using formula in Excel sheet?

Formula makes it easy to calculate the numbers in Excel sheet. It also calculates automatically the number replaced by another number or digit. It is used to make complex calculations easy.

24) What is the order of sequence of operating mathematical operation in Excel?

The order of sequence is written as BEDMAS:

- Brackets
- Exponents
- Division
- Multiplication
- Addition
- Subtraction

25) What is the use of LOOK UP function in MS Excel?

The LOOK UP function is used to return a value from an array.

26) What is a Macro in Excel? How to create an Excel Macro?

Excel Macro is the set of instructions that is recorded by users for repetition purposes. It is created by the users for repetitive instructions and functions they perform on a regular basis.

How would you reduce the file size? What is the easiest way to reduce the file size?

You can use the following steps to reduce the file size:

- Find the last cell that contains data in the sheet. Delete all rows and columns after this cell.
- To delete the rows, press the key Shift+Space then press Ctrl+Shift+Down on your keyboard.
- Rows will get selected till the last row. Press Ctrl+- on the keyboard to delete the blank rows.
- To delete the column, Press the key Ctrl+Space then press Ctrl+Shift+Right Arrow key on your keyboard.

- Columns will get selected till the last row.
- Press Ctrl+- on the keyboard to delete the blank columns.

27) How many rows and columns are there in Microsoft Excel 2003 and later versions?

You can see the number of columns, rows, cells for Microsoft Excel version 2003 and later versions in the following table:

Excel Versions	Rows	Columns	Total Cells
MS Excel 2003	65536	256	16777216
MS Excel 2007	1048576	16384	17179869184
MS Excel 2010	1048576	16384	17179869184
MS Excel 2013	1048576	16384	17179869184

28) What is the syntax of Vlookup?

Vlookup Syntax:

1. VLOOKUP(lookup_value, table_array, col_index_num,[range_lookup])

29) Is it possible to make pivot table using multiple sources of data?

Yes. It is possible by using data modeling technique

❖ **N.B**

- Before you calculate the multiplication, division, subtraction, addition you must click into the sheet or table where you want to locate desired result. Type the mathematical sign equal (=).
- The page of paper on Microsoft word is known as **DOCUMENT**.
- The page of paper on Excel is known as **SHEET**.
- **RAM** Random Accessory Memory
- **ROM** Ready-Only Memory
- **ICT** Information Communication Technology

Revision

1. What do you mean by cell address?
2. How can you add cells?
3. How can you format MS Excel cells?
4. How can you add comments to a cell?
5. How can you add new rows and columns to an Excel sheet?
6. Is it possible to make pivot table using multiple sources of data?
7. What is the syntax of Vlookup?
8. What are the advantages of using formula in Excel sheet?
9. What are the several report formats in Excel?
10. What is the order of sequence of operating mathematical operation in Excel?
11. Which are the different workbook protection types in Excel?
12. Is it possible to hide or show the ribbon?
13. What is Microsoft Excel?
14. What is the use of comment? How to add comments to a cell?
15. What does the red triangle indicate at the top right hand corner of the cell?
16. What are charts in MS Excel?
17. What is Freeze Panes in MS-Excel?
18. How would you format a cell? What are the options?
19. How to prevent someone from copying the cell from your worksheet?
20. How to sum up the rows and column number quickly in the Excel sheet?
21. How can you check whether the Pivot table is modified or not?
22. When working with tables, what is the command to combine selected cells into one cell in Microsoft Excel? Explain MS Excel in brief?
23. What do you mean by cells in an Excel sheet?
24. Explain what is a spreadsheet?
 - A. Distribute
 - B. Concatenate
 - C. Combine
 - D. Merge

Chapter IV: INTERNET

Introduction: a global computer network providing a variety of information and communication facilities, consisting of **Interconnected** networks using standardized communication protocols. "The guide is also available **on the internet**"

The full meaning of internet

Interconnected Network

INTERNET stands for **Interconnected Network** is a network system that connects millions of web servers. The full meaning of the INTERNET can also be explained by the bunch of websites of different organizations, schools, institutions and more. With the help of the INTERNET, the world is connected

Why is called internet?

The word internetted was used as early as 1849, meaning interconnected or interwoven. The word Internet was used in 1945 by the United States War Department in a radio operator's manual, and 1974 as the shorthand form of Internetwork. On internet there are different applications like Google Chrome, Mozilla Firefox, etc.

Google help users to find everything want to know.

How to find anything on Google?

Open Google → write any address and ask.

The 10 uses of internet



This blog also takes a look at who provides the best internet speed for a seamless internet experience.

- Social Networking. There is no doubt that social networking sites are the most popular use of the internet.
- Online Shopping.
- Online Banking.
- Education and Up skilling.
- Gaming.
- Trading.
- Dating.
- Email Communication

The 3 types of Internet

Internet Connection Types:

WiFi,
Broadband,
DSL, Cable

People use the following network every day:

1. Mail Delivery System
2. Telephone System
3. Public Transportation System.
4. Corporate Computer System
5. The Internet

❖ Host device icons

Desktop, Laptop computer, Server, tablet, Smartphone, printer, camera, IP phone, scanner, etc.

Intermediary device icons:

Switch, Router, Wireless, router, Access Point, Modem.

❖ Network media device:

- Copper cabling
- Fiber –Optic cabling
- Wireless connection

The Internet an example

Hence, the correct answer is the Wide Area Network

Advantages of Internet:

People would gain knowledge and obtain loads of information about services.

It permits online payments and digital marketing.

Disadvantages of Internet:

It leads to the insecurity of information and data loss.

It has a bigger Workload and Complex Designing.

Types of Networks

- PAN (Personal Area Network)
- LAN (Local Area Network)
- MAN (Metropolitan Area Network)
- WAN (Wide Area Network)

What is LAN and WAN?

LAN is a network that usually connects a small group of computers in a given geographical area. MAN is a comparatively wider network that covers large regions- like towns, cities, etc. The WAN network spans to an even larger locality. It has the capacity to connect various countries together

The different types of networks

- Personal area network. A personal area network (PAN) is the smallest and simplest type of network.
- Local area network.

- Metropolitan area network.
- Campus network.
- Wide area network.
- Content delivery network.
- Virtual private network.

What is use of IP address?



An Internet Protocol (IP) address is the unique identifying number assigned to every device connected to the internet. An IP address definition is a numeric label assigned to devices that use the internet to communicate

What is an example of a IP address?



IP addresses are expressed as a set of four numbers — an example address might be 192.158.1.38. Each number in the set can range from 0 to 255. So, the full IP addressing range goes from 0.0.0.0 to 255.255.255.255. IP addresses are not random.

Two parts of an IP address

The bytes of the IP address are further classified into two parts: the network part and the host part.

The difference between router and modem



A modem is a box that connects your home network to your internet service provider, or ISP. A router is a box that lets all of your wired and wireless device use that internet connection at once and allows them to talk to one another directly.

A modem is transform Analogous signal into Digital signals.

Three types of modem

There are three types of modems:

Cable, digital subscriber line (DSL) and dial-up

E-mail and its steps

Email is electronic mail, the most reliable and legal mode of communication that uses electronic devices and data transmission to deliver messages across different computer networks to one or a group of recipients in the internet.




To create an account:

1. Go to www.gmail.com.
2. Click Create account.
3. The sign-up form will appear. ...
4. Next, enter your phone number to verify your account. ...
5. You will receive a text message from Google with a verification code. ...
6. Next, you will see a form to enter some of your personal information, like your name and birthday

Send attachments with your Gmail message


Add attachments, like files or photos, to your emails. To send large files over the size limit, like videos, use Google Drive.

Android Attach a file

1. On your Android phone or tablet, open the Gmail app .
2. Tap Compose .
3. Tap Attach .
4. Tap **Attach file** or **Insert from Drive**.
5. Choose the file you want to attach.

Tip: For some file types, like ZIP files, you will need to download [File manager](#) from Google Play before you can attach them.

Remove an attachment

After you add an attachment, you can remove it. To the right of the attachment name, tap Close .

Attachment size limit

- Gmail account: 20 MB

- Non-Gmail account: Up to 25 MB, depending on your email provider

For larger attachment you can [using Google Drive](#)

URL stands for Uniform Resource Locator. A URL is nothing more than the address of a given unique resource on the Web. In theory, each valid URL points to a unique resource. Such resources can be an HTML page, a CSS document, an image, etc

You can request different Government services online through Irembo, the one-stop service portal.

Definition of Irembo eGovernment Portal

Irembo is an eGovernment platform which enables the access and provision of government services in Rwanda, built within a PPP framework. This tech platform was created to shorten the gap between Rwandan citizens and the government by digitizing access to various online public services. Since its establishment in 2014.

How to use Irembo service on my smart phone?

How to Pay for a Service

1. The application process on IremboGov has three steps: Apply, Verify, and Pay.
2. After submitting the application, the applicant is sent a Bill ID for payment.
3. -Dial *182*4*5*1*Bill ID# and follow the instructions on your phone.
 4. How do I search for an application on Irembo?
 5. Visit Irembo platform: www.irembo.gov.rw and click on Find Application

To Create an Account on Irembo

This article describes a step-by-step guide of how one can create an account on Irembo Gov by themselves.

Prerequisites:

- Applicants should have a **National ID** that corresponds to their **Rwandan phone number**.
- Dial ***125#** to check. If they do not correspond, please visit the nearest MTN or Airtel Service Center for guidance.

Follow these simple steps to create an account on Irembo:

1. Visit www.iremboGov.rw and click on **Sign up**
2. A new page is displayed. Follow a 3-step process to set up your account.
 - a. **Submit Required Information:** Enter your **ID number** and **Phone number**, and click on **Register**.

b. Account Verification: A verification code/One-Time Password (OTP) is sent to your phone number via SMS notification. Enter the **OTP** and click **Submit**.

c. Set Your Password: Enter your new password and confirm it. Then, click on **Submit new password**.

Now, you are good to go! You shall receive an SMS notification from Irembo to confirm that your account has been created.

The advantages of using Irembo website

- Irembo has saved government from incurring losses due to corruption implicated in the former manually-offered services.
- Irembo has provided a platform that offers these services in transparency.
- The platform has cut down on the time spent by public to get these services.

When you are Offline you may make a call on smart phone and send or receive message s

Make a phone call by using Android smartphone.

1. Open your phone's Phone app.
2. Pick who to call: To enter a number, tap Dialpad. To pick a saved contact, tap Contacts.
3. Tap Call.

When you're done with the call, tap End call . If your call is minimized, drag the call bubble to the bottom right of the screen

Send & receive text & voice messages in Messages

1. Open the Messages app .
2. Tap Compose .
3. In "To," enter the names, phone numbers, or email addresses that you'd like to message. You can also pick from your top contacts or your whole contact list.

The primary codes when you want to use different services :

Codes: *125#, for checking the mobile number registered on your ID.

*135*8# for checking your MTN mobile number.

*467# for checking your airtel-Tigo mobile number.

- *140# for buying your MTN mobile Yolo packs.
- *140*5# for checking remained MTN mobile Yolo packs.
- *255# for buying ubuntu packs for call, Data and SMS.
- *131# for checking your MTN and Airtel-Tigo airtime.
- *909# Irembo services through mobile phone.
- *182# Mobile Money and Airtel Money.
- *500# Tigo Cash.
- *506# for EJOHEZA.

Dialing ##002# deactivates any conditional or unconditional call forwarding settings on your account and also such as messages or voicemails that were previously diverted to another number. This code only applies to phones on GSM networks such as AT&T or T-mobile deletes any data.

Revision

- 1.What is an Internet?
- 2.How Google is important?
- 3.Give any 4 examples of host device icons and intermediary device icons?
- 4.How modem is important?
- 5.State five networks people use every day?
- 6.Give two advantages and disadvantages of internet?
- 7.State any seven types of internet?
- 8.What is the different between Router and Modem?
- 9.What is the different between LAN and WAN?
- 10.Define the term IP address and give any example?
- 11.What are the two parts of an IP address?
- 12.What is an example of Internet?

13. What is an use of an IP address?

14. Why is it called an Internet?

15. In an email what is the function of the BCC:

- A. To include a hidden attachment B. To send a copy of the email without notifying others C. To send the message to many recipients without notifying others D. To delete the email

16. When surfing internet using a public internet it is safe to login your email account. Select one: A True B False

17. Which of the following options are URLs? (Select all the correct answers)

- A. C:\users\test\Documents B. E:\Libraries\myDocuments\atingi.docx C. risa.gov.rw D. <https://www.pbst.com> E. switch@cisco.com

18. What advice can you give to a user who is suspecting that his/her email account has been hacked? A. Create a new email account B. Activate 2 steps authentication C. Call the police D. Change the account password E. Ignore the problem.

19. What is email and its steps?

20. How to create an account on Gmail?

21. How to Send and remove attachments with your Gmail message on Android smart phone?

22. Give Attachment size limit?

23. How to Create an Account on Irembo?

24. What are the simple steps followed to create an account on Irembo?

25. Before Prerequisites an online services through iremboGov, what to do?

26. How When you are Offline you may make a call on smart phone and send or receive messages?

Chapter V: LAB PROCEDURES AND TOOL USE

Introduction: This chapter discussed safe lab procedures correct tool usage and the proper disposal of Computer component and supplies. You have familiarized yourself I lab with

many of the tools used to build service and clean Computer and electronic component You have also learned the importance of organizational tools and how these tools help you Work more efficiency. Use the memory aid **P-A-S-S** to remember the basic rules of fires extinguisher operation.

P :Pull the pin

A: Aim at the base of the fire not at the frame

S: Squeeze the level

S: Sheep the nozzle from side to side

Each type of fire extinguisher has specific chemicals to fight different type of fires

- ✓ Paper wood, Plastics card board
- ✓ Gasoline, Kerosene, Organic solvents
- ✓ Electrical equipments
- ✓ Combustible metals

General tool use

Hardware tools are grouped into four categories:

- ✓ ESD tools
- ✓ Hand tool
- ✓ Cleaning tools
- ✓ Diagnostic tools

Some of the important concept to remember from this chapter

- Work in safe manner to protect users and equipment.
- Follow all safety guidelines to prevent injuries to your self.
- Know how to protect equipment from ESD damage.
- Know about and be able to prevent power issues that can cause equipment damage or Data loss.
- Know which product and supplies require special disposal procedure.
- Familiarize yourself with the SDS for safety issues and disposal restrictions to help protect the environment.

- Be able to use the connect tools for the task.
- How to clean component safety.
- Use organizational tools during computer repairs.

- Know how to clean component safety.

The rules for fire extinguishers



- Fire extinguishers must be accessible to employees without subjecting them to possible injury.
- Only OSHA-approved fire extinguishers may be used.
- Fire extinguishers must be charged, operational and in their designated place when not in use.

The 4 golden rules of using a fire extinguisher

- P – Pull the pin.
- A – Aim nozzle at base of fire.
- S – Squeeze the trigger.
- S – Sweep nozzle from side.

The 4 types of fire?

Let's break down each of the 5 different classes of fires more thoroughly.

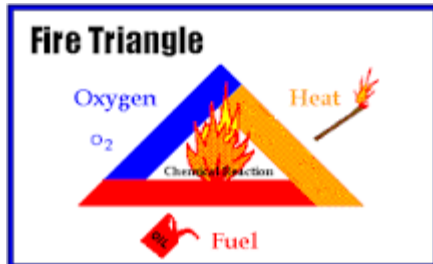
- Class A Fires: “Ordinary” Fires.
- Class B Fires: Liquids & Gases.
- Class C Fires: Electrical Fires.
- Class D Fires: Metallic Fires.
- Class K Fires: Grease Fires or Cooking Fires.
- Choose the Right Fire Extinguisher.
- Complete Regular Training

What is ABC and CO2 fire extinguisher?

ABC Fire extinguisher - It uses mono-ammonium phosphate as a dry chemical agent to extinguish the fire by smothering the flames. It can be used for stopping all types

of fire. Carbon Dioxide based - It is mainly used for class B fire, i.e. flammable liquids and gases and class C fire, i.e. energized electrically

The 3 elements of fire



Oxygen, heat, and fuel are frequently referred to as the "fire triangle." Add in the fourth element, the chemical reaction, and you actually have a fire "tetrahedron." The important thing to remember is: take any of these four things away, and you will not have a fire or the fire will be extinguishes

The tools found in computer laboratory?

School net ICT Lab equipment includes computers, monitors, keyboards, disk drives, modems, printers, scanners, cameras, speakers, and multimedia projectors like Kyan, Whiteboard, and Chrome books.

After procedures that you need to perform while working on a computer?

Repetitive Strain Injury (RSI)

- Organize workloads to avoid using the computer for extended periods of time.
- Your screen, keyboard and mouse should be directly in front of you.
- Using document holders avoids having to lean over and bend your neck while looking at paperwork.

The 10 computer lab rules

- Eyes on the Speaker.

- Turn Monitors off when asked.
- No Going on Websites that are not approved.
- No Food or Drinks.
- Wash your Hands Before using the Computer.
- Only Use your Assigned Computer.
- Don't Change the Settings.
- Ask Permission to Download

The five tools of computer

There are five main hardware components in a computer system: Input, Processing, Storage, Output and Communication devices

The system tools in computer

Windows System Tools Periodic maintenance is necessary for smooth performance of a system. System tools in computer like disk check, disk defragmenter, etc help in aforementioned system maintenance. It is practically impossible for administrators to manually perform these maintenance activities on individual computers.

What is a disk scan?

CHKDSK (check disk) is a system tool or utility on Windows operating systems that scans your hard drive for file system errors. Running the CHKDSK utility helps check and repair hard drive errors and keeps your system data organized — its part of good computer hygiene.

The 5 examples of laboratory tools

Among the many items that would be considered general lab equipment are pipettes, scales, centrifuges, Bunsen burners, freezers, hot plates, incubators, coolers, stirrers, water baths, and fume hoods.

Revision

1. What are the tools found in computer laboratory?
2. What are 5 safety procedures that you need to perform while working on a computer?
3. What is the use of safe lab procedures and tools used?

4. What are the 10 computer lab rules and What are the tools found in computer laboratory?
5. What are 5 safety procedures that you need to perform while working on a computer?
6. What is the use of safe lab procedures and tools used?
7. What are the 10 computer lab rules?
8. What are 5 examples of laboratory tools?
9. What are the five tools of computer?
10. What is the safety procedure in computer lab?
11. What are the safety procedures you should follow in maintaining your hand tools and computer equipment?
12. What are 10 of the basic rules to follow for proper and safe tool usage?
13. What are 20 laboratory safety rules?
14. What are the four computer lab requirements?
15. What are the 15 lab safety rules?
16. What is the most important lab tool?
17. What are the 10 personal protective's equipment in laboratory?
18. What are the uses of laboratory tools and why they are important?
19. How many tools are in computer?
20. What are the basic tools of a computer?
21. What are system tools in computer?
22. What are the 3 main types of computer tools?
23. What are the 4 types of system software?
24. What is a disk scan?
25. How to repair Windows 10?
26. What type of file system is NTFS?
27. What are the functions of Scandisk?
28. What are the rules for fire extinguishers?
29. What are the 4 golden rules of using a fire extinguisher?
30. What is the difference between each fire extinguisher?
31. What are the different types of fire extinguishers and their purpose?
32. What are the 4 types of fire?
33. What is the difference between red and green fire extinguisher?
34. What is the first rule of fire?
35. What is ABC and CO2 fire extinguisher?
36. What is ABC of fire extinguisher?
37. What are the 3 elements of fire?

38. What are the 3 classification of fires?
39. What are the 2 main types of fire?
40. What is CO2 extinguisher used for?
41. What is C type fire?
42. Why CO2 is used in fire extinguisher?
43. What are the 7 sides of a fire?
44. What is the formula of fire?
45. What are causes of fire?
46. What are the 4 main principles of fire safety?
47. What is the temperature of a fire?
48. What is the chemical name of fire?

Chapter VI: COMPUTER ASSEMBLY

Introduction: This chapter details the steps used to assembly a computer and to boot the system for the first time.

These are some important parts to remember:

- Computer case comes in variety of size and configuration.
- The CPU is installed on the motherboard with thermal compound and a heat and sink and fan assembly.
- AM is installed in RAM slats on motherboard
- Adapter disk drive are installed in PCI and PCIe 3.5 in (98.9cm drive) expansion slot of motherboard bays located inside the case
- Optical drives are installed in 5.25 in (13.34 cm) drive bays can be accessed from outside the case.
- Power supply cable is connected to all drivers and other motherboard.
- Internal data cable transfer data between motherboard and the driver.
- External cable connects peripheral devices to the computer.
- Beep code signify hard ware malfunction.
- The BIOS setup program displaces information about the computer components and allows the user to change system setting.
- Computer component require periodic upgrade and replacement parts
Additional hard drives can provide faults tolerance and the ability to install additional operating system

Boot the Computer (Assembly of Computer)

1. Install the power supply

These are the basic steps to install the power supply

Step1: insert the power supply into the case

Step 2: Align the holes in the power supply with the hole in the case

Step 3: Secure the power supply to the case using the proper screws

Installation tip: Use a cable tie to secure all of the cable out of the way until its time to connect them.

Lab-Install the power supply Introduction: In this lab- you will install the power supply in a computer case.

Recommended equipment

- Power supply with compatible form factor to the computer case
- Computer case

- Tool kit

Power supply screws

Step 1: Open the computer case

- Remove the screws from the side panel
- Remove the side panel from the computer case

Step2: Install the power supply

- Align the screw hole in the power supply with the screw hole in the case
- Secure power supply to the case with the power supply screws
- If the power supply has a voltage selection switch, set this switch to match the voltage in your area. What is the voltage in your area? How many screws secure the power supply in the case? What is the total voltage of the power supply?
- This lab is complete. Please ask the instructors to verify your work.

Install the CPU heat sink and fan assembly Description

- Align the CPU with the socket and gently insert it into the socket.
- Secure the CPU to the socket on the motherboard with the latch plate.
- Secure latch plate by closing the load lever.
- Secure the load lever under the load lever retention tab.
- Apply thermal compound to the CPU.
- Align the heat sink and fan assembly retainers with the hole on motherboard and place.
- The assembly onto the CPU socket.
- Tighten the assembly Retainers to secure the assembly in place.

Install RAM

RAM provide fast temporary data storage for the CPU while computer is operating

The steps followed to install RAM

- Opening the locking tab on the DIMM slot
- Align the matches on the RAM module to the keys in the slot and firmly press straight down.
- Ensure that the locking tabs click into the place.
- COUTION! RAM can be damaged and also cause serious damage to the motherboard.
- If it is correctly aligned when the computer is powered on.
- Make sure each memory module is completely inserted into the socket and the locking.
- tabs have secured the RAM.
- Visually check for exposed contacts.

Installing the motherboard

1. Choose the proper motherboard standoff for the case.
2. Install the standoff in the computer case at the same location of the mowing holes in the motherboard.
3. Install the //O connector plate in the back of computer case.
4. Align the //O connector on the back of the motherboard with the opening in the //O plate.
5. Insert all the motherboard screws and hand-tighten all screws before tightening with a screw's driver.

Types of adapter cards

CPI expansion slots

PCLe X 1 Expansion slots

PCLe X 16 Expansion slots

Adapter cards: wireless Mic PCL

Video adapter card CPLe X 16

Install Wireless:

Step 1: Find on Empty PCL slot on the case and remove the small metal cover

Step 2: Align the card to the appropriate expansion slot on the motherboard

Step 3: press down gently on the card until the card is full secured

Step 4: secure the card mounting bracket to the case with the appropriate screw installation tip

Types of motherboard power connectors

- ATX standards: Motherboard connectors description
- ATX: 20-pin main motherboard connector
- 6-pin auxiliary connector
- ATX12VV2X: 24-pin main connector
- 4-pin auxiliary connector
- AMDGES: 24-pin main motherboard connector
- 8-pin auxiliary connectors
- EPS12V: 24- pin main motherboard connectors
- 8-pin auxiliary connectors

Steps to connect the SATA cable to a drive

- Identify the power connectors
- Install the external cables
- Monitor cable
- Keyboard cable attachment
- Mouse cable attachment
- USB cable attachment
- Power cable attachment

Why is it important to safely dispose of old computer components?

Your security is put at risk, as your sensitive information can easily be stolen from an old device if it isn't cleared properly. It causes E-Waste, contributes to raw material wastage, and is negative on the economy with waste jobs being reduced without computer part recycling.

How do you safely destroy an old computer?

First, unplug your laptop from any power source and let the battery drain. Next, unscrew the casing and open it so you can access the components. Now, unscrew the hard drive from the casing. Finally, break the hard drive into tiny pieces with a hammer or drill

How do you safely destroy an old computer?

First, unplug your laptop from any power source and let the battery drain. Next, unscrew the casing and open it so you can access the components. Now, unscrew the hard drive from the casing. Finally, break the hard drive into tiny pieces with a hammer or drill

Tools used to clean computer here's a quick list

Microfiber cloths, Water, Compressed air, Isopropyl alcohol or glass cleaner Computer screen cleaning wipes Q-tips and Screwdriver

Here are 8 helpful tools for building a PC.

- Organized Workspace. The title may be intangible but what's needed to get this done is quite the opposite.
- Screwdriver Phillips #2. This screwdriver uses a #2 Phillips head.
- Wedges and Prying Tools.
- Pliers.
- Isopropyl Alcohol.
- Thermal Paste.
- Compressed Air.
- Zip Ties

Which of the following are common tools used to physically clean the inside of a computer?

Compressed air: You can use a natural bristle brush and can of compressed air to blow dust off of a motherboard and other circuit cards. Never use anything harsh such as a wire brush.

Assemble a computer properly:

- In what order do I need to put the hardware I bought into my computer?

- Do I need to watch out for static electricity? How can I avoid it?
- What are the common pitfalls when assembling a computer? How do I prevent damage?
- What is the bare minimum I need to connect to test that it works?

Revision

1. What is the 10 steps in computer assembly?
2. What are the steps in computer assembly?
3. What are the parts of computer assembly?
4. What are the tools used in computer assembly?
5. Which computer called PC?
6. Which generation of computer used IC component?
7. Which is based on fifth generation computing devices?
8. Which is processing unit?
9. What is the purpose of memory unit in a computer?
10. What is the use of VGA port?
11. Which of the following are common tools used to physically clean the inside of a computer?
12. What is the type of adapter card?
13. How we do assemble a computer properly?

Chapter VII: MICROSOFT WINDOWS^R INSTALLATION OPERATING SYSTEM

Introduction: This chapter introduces computer operating system as a technician you should be skilled at installing windows operating system. Several different operating systems are available and you must consider the customer’s needs and environment when choosing an OS. This chapter covered windows configuration and management. AS technicians you should be skilled at installing, configuring and troubleshooting on operating system. Some examples of Operating System build Smartphone used in Rwanda are Android and Apple



The following concepts from this chapter are important to remember

Several operating systems are available and you must consider the customer’s needs and environmental when choosing on operating system (OS).

The main steps in setting up a computer include preparing the hard drive, installing the OS, creating user accounts, and configuring installation options.

A GUI shows icons of all files, folders, and applications on the computer.

A pointing device, such as a mouse, is used to navigate in GUI desktop.

A CLI uses commands to complete tasks and navigate the file system with a virtual machine manager system resources on a host computer can be allocated to run virtual machines.

Virtual machines runs operating systems and using them can provide users with greater system functionality.

Preventive maintenance techniques help to ensure optimal performance the operating system (OS).

You should establish a back up strategy that allows for the recovery of data.

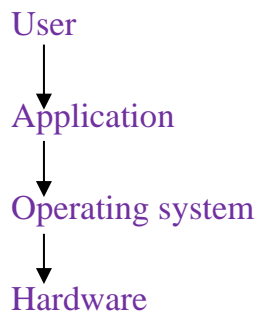
Saving of the tools available for troubleshooting on OS problems includes administrative tools, system tools and CLI commands.

The main steps in setting a customer's computer include preparing the drive, installing the OS, creating accounts and configuring installation options.

How to install window

The operating system OS control almost all function on a computer operating system program

Operating system diagram



The operating system also controls other functions Software resources, Memory allocation and all peripheral devices, Common services to computer application software.

The following terms are often used when describing operating system:

1. **Multi user:** Two or more user has individual account that allows them to work with programs and peripheral device at the same time.
2. **Multi taxing:** The computer is capable for operating multiple applications at the same time.
3. **Multi-processing:** The operating system can support two or more CPUs.
4. **Multi-threading:** A program can be broken into smaller parts that loaded as needed by the operating system multi-threading allows different parts of a program to be run at the same time. The OS boots computer and manage the file system operating system can support more than one use, task or CPU.

Basic function of Operating system

Four (4) basic functions: -Control hardware access

-manages files and folders

-Provide user interface

-Manages application

1 hardware access

They manage the interaction between application and the hardware.

To access and communicates with each hardware component / let us uses a program called a device driver.

The as locates and installs the devices driver for that component. Assigning system resources and installing drivers are performed with a plug and (PnP) process.

2. Fire and folder management

The OS creates a file structure on the disk drive to store data.

A file is a block of related data that is given a single no me and treated us single unit.

2. User Interface

The OS enables the user to interact with the software and hardware operating systems including two types of user interfaces:

1. Command_line interface (CLI). The user types commands at prompt
2. Graphical user interface (GUI) :the user interacts with menus and icons

3. Application Management

The OS locates an application and loads it into the RAM of the computer.

Applications are software programs, such as word processing, databases, spreadsheets. Windows 7 Start Control Panel User Accounts Manage Accounts.

To create or remove a user account in Windows 7 and Windows Vista, use the following path:

- Start Control Panel > User Accounts > Add or Remove User Accounts > Finalize installation.
- To update the OS after the initial installation, Microsoft Windows Update is used to scan for new and install service packs.

OSI Model Description

OSI Mode	Layer	Description
Physical	1	Defines all electrical and physical specifications for devices.
Data link	2	Provides physical, addressing and media access procedures.
Network	3	Responsible for logical addressing and the domain of routing.
Transport	4	Provides reliable transport and flow control across a network.
Session	5	Establishes, manages and terminates the connections between the local and remote application.
Presentation	6	Transforms data formats to provide a standard interface for the application layer.

Comparing the OSI Model and the TCP/ IP Model.

OSI Model.	TCP/ IP Model.
Application, presentation and session.	Application.
Transport.	Transport.
Network.	Internet.
Data link and physical'	Network access.

Revision

1. What are the steps in installing a window?
2. How many types of window installation are there?
3. What are the tools used in installation of window?
4. What is the importance of proper window installation?
5. Explain the main purpose of an operating system?
6. What Is the Purpose of Microsoft Windows?
7. What are the functions of an operating system?
8. What is Windows Server?
9. Explain In windows DNS server what is Primary, Secondary and Stub zone?
10. What are the 5 Microsoft Windows operating system?
11. What is Microsoft Windows operating system?
12. What are the 4 versions of Windows operating system?
13. What are 4 characteristics of Windows operating system?
14. What are the 7 types of operating system?
15. What are the advantages of Microsoft Windows?
16. What are the various components of Windows?
17. What is difference between OS and Windows?
18. State differences between the OSI Model and the TCP/ IP Model using a table?.
19. Complete the table below:

OSI Mode	Layer	Description
	1	Defines all electrical and physical specification for devices.
Data link	2	Provide physical, addressing and media access procedures.
	3	Responsible for logical addressing and the domain of routing.
	4	Provides liable transport and flow control across a network.
	5	Establishes, manages and terminates the connections between the local and remote application.
Presentation	6	

Chapter VIII: OVERVIEW PREVENTIVE MAINTENANCE

Introduction: Troubleshooting is a skill that you refine overtime, each time you solve a problem you increase the trouble shooting skills by gaining more experience. This chapter discussed the concepts of preventive maintenance and the troubleshoot process. Troubleshooting is a systematic process used to identify the cause of fault in computer system and correct relevant hardware and software

- Regular preventive maintenance reduces hardware and software problems
- Before beginning any repair back up the data on a computer
- The trouble shooting process in a guideline to help you solve computer problems in efficient manner.
- Document everything that you try even of it false, the documentation that you create is useful resource for you and another technician
- Regular preventive maintenance reduces hardware and software problems
- Before beginning any repair ,back up the data on a computer
- The troubleshooting process is a guide line to help you solve computer problems in a efficient manner
- Document every that you try, even if it fails. The documentation that you create is a useful resource for you and other technicians.

Preventive maintenance plans are developed based on at least two factors

- ✓ Computer location or environment
- ✓ Computer use

Preventive maintenance also offers these benefits:

- Improve data
- Extends the life of the components
- Improves equipments stability
- Reduces the number of equipment failures

Preventive maintenance task

Hardware tasks

- Use these tasks a guide to creating a hardware maintenance plan

- Remove dust from fans
- Remove the dust from power supply
- Clean mouse, keyboard ,hard drives
- Check for and secure any loose cables

Software tasks

Use these tasks as a guide to creating a software maintenance schedule that fits your needs

- Scan hard drives for errors
- Optimize(defragment) of hard drives
- Scan for viruses software
- Update the virus definition files
- Review and install the appropriate security update
- Review and install the appropriate software update
- Review and install the appropriate driver update

Identify the problems

There are 6steps of problems

Step I: identify the problems

Step II: Establish a theory of probable cause

Step III: Test the theory to determine the cause

Step IV: Establish a plan of action to resolve the problem and implement the solution

Step V: Verify full system functionality and if applicable implement preventive measures

Step VI: Document finding, action and out comes

Troubleshooting process steps

Step 1: Identify the problem

- Customer information: Company name
- Contact name
- Address
- Phone number
- Computer configuration: Manufacture and model

- Operating system
- Network environment
- Connector type
- Problem description: Open-ended question
- Closed-ended question
- Error message
- Beep sequences
- LEDS
- POST

Question type technician question

- Has anyone else used your computer recently?
- Have you received any errors message on your computer?
- What problem are you experiencing with your computer or network?
- Can you reduce the problem?
- What software has been installed in your computer recently?
- What where you doing when problem was identified?
- Have you changed your password recently?

- What hardware changes have been made recently to your computer?
- Are you currently logged into network?

Step 2: Establish a theory of probable cause

- Device is powered off
- Power switch for on outlet turned off
- Surge protector is turned off
- Loose external cable connections
- Non-bootable disk is designated boot drive
- Incorrect boot order in Bios' setup

Step 3: Test the theory to determine cause

Common steps to determine cause:

- Ensure the device is turned on
- Ensure the power switch for on outlet is turned on
- Ensure the surge protector is turned on
- Ensure that external cable connection is secure
- Ensure that the designated boot drive is bootable
- Verify the boot order in bios setup

Step 4: Establish a plan of action to resolve the problem and implement the solution

Solution is achieved in previous step further research is needed to implement the solution

- Help desktop logs other techniques
- Manufacture FAQ website
- Technical website
- Computer manual
- New groups
- Device manuals
- Internet research

Step 5: Verify full system functionality and if applicable implement preventive measures

- Reboot the computer.
- Ensure multiple application work properly.

- Verify network and internet connection.
- Print a document from one application.
- Ensure that all attached devices work properly.
- Ensure no error message are received.

Step 6: Document findings, Action and outcome

- Discuss the solution implemented with customers.
- Have the customer verify that problem has been solved.
- Provide the customer with all proper work.
- Document the steps taken to solve the problem on the work order and in the technician.

- Journal.
- Document any component used in the repair.

Document the amount of time spent to solve the problem.

The different component of computer





Common problem and solution for storage devices

Identify the problem	Possible cause	Possible solution
<ul style="list-style-type: none"> The computer does not recognize a storage device. 	<ul style="list-style-type: none"> The power cable is loose The data cable is loose The jumpers are set incorrectly The storage device has failed The storage device setting in BIOS are incorrectly 	<ul style="list-style-type: none"> Secure the power cable Secure the data cable Reset the jumpers Replace the storage device Reset the storage device setting in BIOS.
<ul style="list-style-type: none"> The computer does not recognize Optical disc 	<ul style="list-style-type: none"> The disc is inserted upside down There is more than one disc inserted in the driver The disc is damaged The disc is wrong format The optical drive is faulty 	<ul style="list-style-type: none"> Insert the optical disc correctly Ensure that there is only one disc inserted Replace the disc Replace the optical disc Use the correct type of disc

<ul style="list-style-type: none"> The computer will not eject the optical disc 	<ul style="list-style-type: none"> The optical drive is jammed. The optical drive has been locked by software. The optical drive is faulty 	<ul style="list-style-type: none"> Insert the pin in small holes Reboot the computer Replace the optical drive
<ul style="list-style-type: none"> The computer does not recognize a removable external drive 	<ul style="list-style-type: none"> The removable external drive is not seated properly The external part is disabling in the BIOS setting. The removable external drive is 	<ul style="list-style-type: none"> Remove and re-insert the drive. Enable the parts in BIOS setting Replace the removable external drive.
<ul style="list-style-type: none"> The after upgrading from a single core CPU to dual core CPU, the computer runs more slowly and only shows one CPU graph in the task manager. 	<p>The BIOS does not recognize the dual core CPU.</p>	<ul style="list-style-type: none"> Update the BIOS firmware to support the dual core CPU
<ul style="list-style-type: none"> A media cannot read a memory card that works properly in the camera 	<ul style="list-style-type: none"> The media reader does not support the memory card type The media reader is not correct. 	<ul style="list-style-type: none"> Use the different memory card type. Ensure the memory reader is connected correctly in the computer.
<ul style="list-style-type: none"> The clock in the computer is no longer keeping the correct time or the BIOS setting are changing when computer rebooted. 	<ul style="list-style-type: none"> The CMOS battery may be loose. The CMOS battery maybe faulty 	<ul style="list-style-type: none"> Secure the battery. Replace the battery.

	<ul style="list-style-type: none"> • After updating the BIOS firmware the computer will not start. 	<p>The BIOS firmware update did not install correctly.</p>	<ul style="list-style-type: none"> • Contact the motherboard manufacture to obtain a new BIOS chip. • (If the motherboard has two BIOS chips, the second BIOS chip can be used).
	<ul style="list-style-type: none"> • The computer display the incorrect CPU information when the computer boots 	<ul style="list-style-type: none"> • The CPU setting is not correct in advanced BIOS setting. • BIOS does not properly recognize the CPU 	<ul style="list-style-type: none"> • Set the advanced BIOS setting correctly for the CPU • Update the BIOS
	<ul style="list-style-type: none"> • The hard drive LED on the front of the computer does not light 	<ul style="list-style-type: none"> • The hard drive LED cable does not connected or is loose. • The hard drive LED cable is incorrectly oriented to the front case panel connections. 	<ul style="list-style-type: none"> • Reconnect hard drive LED cable to the front case panel connection and reconnect.
	<p>The built-in NIC has stopped working on a computer</p>	<ul style="list-style-type: none"> • The NIC hardware has failed. 	<ul style="list-style-type: none"> • Add new NIC to open expansion
	<ul style="list-style-type: none"> • The computer does not display any video after installing a new PCIe video card 	<ul style="list-style-type: none"> • BIOS settings are set to use the built-in video • The cable is still connected to the built-in video. • The new video card is faulty. 	<ul style="list-style-type: none"> • Disable the built-in video in the BIOS setting. • Connect the cable to the new video card. • The new video card needs auxiliary power. • Connect any required power

		<p>connectors to the video card</p> <ul style="list-style-type: none"> • Install a known good video card.
<ul style="list-style-type: none"> • The new sound card does not work. 	<ul style="list-style-type: none"> • The speaker are not connect jack • The audio is mated • The sound card is faulty • BIOS setting are set to use in –board sound device 	<ul style="list-style-type: none"> • Connect the speakers to the correct jack. • Unmated the audio • Install a known good sound card. • Disable the on board audio device.
<ul style="list-style-type: none"> • The computer will not turn on 	<ul style="list-style-type: none"> • The computer is not plugged in to the outlet. • The AC outlet is faulty. • The power card is faulty. • The power supply switch is not turned on. • The power supply switch is set to the incorrect voltage. • The power button is not connected correctly to the front panel connector. • The power supply has failed. 	<ul style="list-style-type: none"> • Plug the computer into the known good AC outlet. • Use a known good power card. • Turn on the power supply switch. • Se the power supply switch to the correct voltage setting. • Install a known good power supply
<p>After upgrading windows, the computer runs very slowly.</p>	<p>The computer does not have enough RAM The video card does not have enough memory.</p>	<p>Install additional RAM Install a video card that has enough memory.</p>
<p>The computer reboots turns off unexpectedly or there is smoke or smell of burning electronics.</p>	<p>The power supply is starting to fail</p>	<p>Replace the power supply.</p>

The computer will not boot or it lockup.	The CPU has overheated The CPU fan is failing The CPU has failed	Re-install the CPU Replace the CPU Add fan(s) to the cable Replace the CPU
The CPU fan is making on unusual noise	The CPU fan is failing	Replace the CPU fan
The computer reboots without warning, lock up, or display error messages	The front –side bus is set too high The CPU multiplier is set too high The CPU voltage is set too high	Reset to factory default setting for the motherboard Lower the front side bus setting Lower the multiplier setting Lower the CPU voltage setting
A CPU will not install into the motherboard	The CPU is the incorrect type	Replace the CPU that matches the motherboard socket type

TCP/IP attack type and it’s description

TCP/IP attack type	TCP/IP attack description
Mon-in-the middle	An attack intercepts communication between computer and steal information transiting through the network.
Dos	the type of attack creates an abnormally large amount of requests to network server which over whelms the servers
Spoofing	A computer uses a forged IP or MAC address to pretend to be a trusted computer to gain access to resources.
Replay	Data transmission are intercepted and recorded on attacker. They are then to destination computer. The destination computer handles these transmission as though they are authentic
Syn flood	This attack randomly open TCP parts as the sources of the attack with the large amount of false SYN requests. This cause of session to be denied to others.

Identify Data Protection Terminology

Data protection term	Description
Degaussing	Use powerful magnet to eliminate the magnetic field on hard drive.
Trusted platform module	Must be enable in Bios before using Bit locker.
Principle of least privilege	User is limited to only the resources they need the computer or network.
Security key tab	a small device used for two-factor authentication
Software firewall	A program that runs on a computer to allow or deny traffic between computer and other computers to which it is connected

Identify Physical Security Devices

Physical security device Devices description:

Bio metric device: Uses the physical characteristic of the users as on aid to positive identification.

Smart card device: Uses an embedded integrated circuit chip to store data safely.

Key tab: Uses a small radio system to communicate with computer.

Revision

1. What is preventive maintenance overview?
2. What is the general overview of maintenance strategies?
3. What are 7 elements of preventive maintenance?
4. What are the five 5 important tasks that should be included in a preventive maintenance plan?
5. Give the preventive maintenance examples?
6. Give the preventive maintenance checklist?
7. What are Types of preventive maintenance?
8. What is the importance of preventive maintenance?
9. What preventive maintenance computer checklist?

10. What is preventive maintenance in computer?
11. What is the Common steps to determine the cause?
12. Identify Data Protection Terminology?
13. What TCP/IP attack type and it's description?
14. Identify Physical Security Devices?
15. Identify Troubleshooting process steps?
16. Identify the solution of the following problems: The power cable is loose, The data cable is loose, The jumpers are set incorrectly, The storage device has failed, The storage device setting in BIOS are incorrectly

Chapter X: NETWORK CONCEPTS.

Introduction: A network that connect drivers within the range of on individual person.

TYPES and DESCRIPTION

All f these devices are deducted to a single host.

Peer- To Peer: A network that has no hierarchy among the computers, nor are these any dedicated servers. Each client has equivalent capabilities.

LAN A network that encompasses a small geographical area.

MAN is networks that spans across a large campus or city and consists of various buildings interconnect many wireless or fiber optic backbites.

WLAN A network that uses radio waves to transmit data between wireless devices. This network can operate in structure or Ad hoc mode. Ad hoc mode refers to a wireless network structure where devices can communicate directly with each other.

WAN A network that connects multiple networks that are in geographically separate location and is owned by a service provider.

Client – Server: A network where hosts request information or services from server. The server provides the requested information or service to hosts.

ACKNOWLEDGE

Many different devices can connect today's networks including computers, laptops, tablets, Smartphone, TVs watch, and home appliances .these devices use a variety of media to Connect to the network including copper fiber .and wireless.

Intermediary devices, such as switches and routers, ensure that data flows between source and destination.

The type of network these devices connect to include LANS, WLANS, PANS, MANS and WANS.

Devices must agree on a set of rules before they can effectively communicate with each other. These rules are called standards and protocols.

The OSI reference model and the TCP /P protocol suit help network administrations and Technicians understand the interaction of these various standards and protocols.

Ethernet standards come in wired and wireless varieties. The wired stand is IEEE 802.3 and the wireless standard is IEEE 802.11.

Data requires several different types of addresses and cambering to make sure it is received by the correct destination.

MAC addresses are used by switches to forward traffic within a LAN.

IP addresses are used by routers to determine the best path to a destination network.

Port numbers are used by computers to determine which application should receive the data.

Revision:

3. Network concept what does it mean?
4. Explain the different types of network concept?
5. What are the Ethernet standards come from wired and wireless varieties?
6. What are the devices connected to the types of network?
7. Which address is used by switches to forward traffic within a LAN?

8. Data requires several different types of addresses and cambering to make sure it is received by the correct destruction, Explain them?
9. Which intermediate devices ensure that data flows between source and distraction?

Chapter IX: APPLIED NETWORKING

This chapter introduced you to the ways to connect computers to a network as well as the many services network offer. The different aspects of trouble shooting a network were discussed with example of how to analyze and implement simple solutions. Application-defined networking is a specific kind of networking principle where software applications request or demand network changes in order to provide for their needs, instead of passively existing on a network. Application-designed networking is part of modern intelligent network design, which aims to create more different kinds of functionality for individual applications within a network.

Connect a PC to your wireless network

1. Select the Network or Wifi icon in the notification area.
2. In the list of networks, choose the network that you want to connect to, and then select Connect.
3. Type the security key (often called the password).
4. Follow additional instructions if there are any

What are 3 ways to connect computers to a network?

What to Know

1. Connect both computers with one cable, such as an Ethernet crossover or special-purpose USB cable.

2. Or, connect the PCs through a central infrastructure, such as an Ethernet or USB hub. Two cables are required.
3. For newer computers and laptops, connect wirelessly via Wi-Fi, Bluetooth, or infrared

How to Connect a PC to a Network

Do you need to connect your Windows computer to the internet? Today, internet access is needed to do just about everything. You can connect to a wireless network by using your computer's Wi-Fi settings. Alternatively, you can connect the computer directly to the Internet modem or router using an Ethernet cable. Keep in mind that connecting to a network is different than [setting up a wired computer network](#) such as the kind you'd find in an office. This wiki articles teaches you how to connect a Windows computer to an Internet networks.

Things You Should Know

- You can usually find your Wi-Fi name and password on the bottom of the router or in the user's manual.
- Click the icon that resembles a wireframe globe in the taskbar. Then click the Wi-Fi icon, and select your wireless network. Enter your network password.
- You can also connect to the internet by connecting an Ethernet cable from your computer to a LAN port on your modem or router.

Method1

Connecting to Wi-Fi on Windows 11

1 Make sure your network is up and running. In order to connect to an internet network, you need to [set up your wireless network](#). The network's modem must be connected to an Internet output (e.g., a cable outlet), and the network's router must be connected to the modem. Both the router and the modem must be turned on.

- You can check the status of your Internet connection by looking at the status lights on the modem and/or router. If the Internet connection looks like it's faltering, you may want to [use a wired connection](#) instead of Wi-Fi.

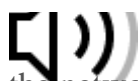
- Some modems include a built-in router.

2

Click the network,



Volume and battery button. The button that has icons that resemble a wireframe globe, speaker, and battery is in the taskbar at the bottom of the screen. This displays a pop-up menu.



the network icon will resemble a wireframe globe. If you are not connected to Wi-Fi, the icon will be grey. Click the Wi-Fi icon to turn Wi-Fi on or off.

3

Click the Wi-Fi button



If necessary. If you are not connected to Wi-Fi, the icon that resembles arching lines in the shape of a fan will be grey. This means Wi-Fi is turned off. Click this button to turn Wi-Fi on.

- If the Wi-Fi icon is not displayed in the taskbar, you may need to click the icon that resembles a bracket pointing up



to display all icons in the taskbar.

4

Click Click the icon that resembles a bracket pointing right. It's to the right of the Wi-Fi button. This displays a submenu with available Wi-Fi networks you can connect to



5. Select your wireless network and click Connect. You should see your Wi-Fi network name in the list of available networks. Click your wireless network and then click the blue button that says **Connect**.

- If you don't see your network's name, you may need to move closer to your router/modem, or check to make sure your Wi-Fi network is up and running. It's also possible your network name may be hidden and requires you to enter it manually. If your network is hidden, you will need to [log in to your router](#) and either find out the name of your SSID or unhide the network.
- Your network's name will most likely have your router/modem name, model number, and/or manufacturer name in its title if the network hasn't been set up before.

6 Enter the network's password. In the text box that appears, type in the password used to log into your network.

- If you haven't changed the network's password from the factory default, the password can be found on a sticker that's usually on the bottom or back of the router (or modem/router combination) or in the user's manual that came with your modem or router. If the network doesn't have a password, clicking **Connect** in the previous step will connect you to the network.

7 Click Next. It's below the password text field. Doing so enters the password and attempts to connect your computer to the network.

- If the password is incorrect, you'll be asked to re-enter the password.

8 Wait for the network to connect. Once your computer finishes connecting to the network, you should see the word "Connected" appear below the network's name. At this point, you're free to begin using the Internet on your PC.

- If you have multiple computers connected to the same Wi-Fi network, you can [connect to other computers](#) on the same wireless network.

Method2

Connecting to Wi-Fi on Windows 10

1. Make sure your network is running. In order to connect to an internet network, you need to [set u your wi-fi Network](#). The network's modem must be connected to an Internet output (e.g., a cable outlet), and the network's router must be connected to the modem. Both the router and the modem must be turned on.

- Some modems include a built-in router.
- You can check the status of your Internet connection by looking at the status lights on the modem and/or router. If the Internet connection looks like it's faltering, you may want to [use wired connection](#) instead of Wi-Fi.

2

Click the network



icon. It's in the bottom-right corner of the screen, on the right side of the taskbar. If your computer is not connected to Wi-Fi, the icon will resemble a wireframe globe.

- If your computer is already connected to a Wi-Fi network, the network icon will resemble arching lines in the shape of a fan. Click this icon instead.
- If the Wi-Fi icon is not displayed in the taskbar, you may need to click the icon that resembles a bracket pointing up



to display all icons in the taskbar.

3 Turn on Wi-Fi if necessary. If you see a message that says "Wi-Fi Turned off" at the top of the pop-up menu, click the **Wi-Fi** box in the bottom-left corner of the pop-up menu before proceeding.

4 Select your wireless network's name. Click the name of the wireless network to which you want to connect. The network's name will expand.

- If you don't see your network's name, you may need to move closer to your router/modem, or check to make sure your Wi-Fi network is up and running. It's also possible your network name may be hidden and requires you to enter it manually. If your network is hidden, you will need to [log in to your router](#) and either find out the name of your SSID or unhide the network.
- Your network's name will most likely have your router/modem name, model number, and/or manufacturer name in its title if the network hasn't been set up before.

5 Clicks Connect. It's below the network's expanded name in the pop-up menu.

- 6 Enter the network's password.** In the text box that appears, type in the password used to log into your network.
- If you haven't changed the network's password from the factory default, the password can be found on a sticker that's usually on the bottom or back of the router (or modem/router combination) or in the user's manual that came with your modem or router.
 - If the network doesn't have a password, clicking **Connect** in the previous step will connect you to the network.

7 Click Next. It's below the password text field. Doing so enters the password and attempts to connect your computer to the network.

- If the password is incorrect, you'll be asked to re-enter the password.

8 Wait for the network to connect. Once your computer finishes connecting to the network, you should see the word "Connected" appear below the network's name. At this point, you're free to begin using the Internet on your PC.

- If you have multiple computers connected to the same Wi-Fi network, you can connect to wired computers on the same wireless network.

Method3

Using Ethernet

1 Make sure your network is running. In order to connect to an Internet network, the network's modem must be connected to an Internet output (e.g., a cable outlet), and your router must be connected to the modem. Both units must be turned on.

- Some modems include a built-in router.
- If you don't need the Internet to be available to wireless items or users on your network, you don't need to use the router—you can connect your computer directly to the modem instead.

2 Buy an Ethernet cable if you don't have one. Ethernet cables are used to connect network items (e.g., your computer or a router) to a modem or a connected router. You can find Ethernet cables in most stores that sell electronics, or you can look online at places like Amazon and Best Buy.

- Make sure the Ethernet cable you buy is long enough to stretch from your router or modem to your computer if you can't move your computer.
- Your Ethernet cable shouldn't be longer than 100 meters, and 90 meters is commonly accepted as the maximum effective length.
- You can also use an Ethernet cable to [connect two computers together](#).

3

Find a free Ethernet LAN port on your router or modem. Ethernet ports are square holes found in the back of your router and modem. The Ethernet port that you can use on your router usually has "LAN" written above or next to it. Your router may have multiple ports available.

- Modems usually only have one "Internet" port which is usually used to connect the router to the modem.
- If you're connecting your computer directly to the modem on a network that uses a separate router, unplug the router from the modem's Ethernet port before proceeding.

4

Locate your computer's Ethernet port. Find the square Ethernet port on your computer. If your computer has an Ethernet port, it's probably on one of the computer's sides (laptop) or on the back of the computer's tower (desktop).

- If your computer doesn't have an Ethernet port, you'll need to buy a USB-to-Ethernet adapter for your computer.

5 Connect the computer to the router or modem. Plug one end of the Ethernet cable into a free LAN port on your router or modem, and then plug the other end of the cable into your computer's Ethernet port.

- Ethernet cables' ends are interchangeable, so it doesn't matter which end you plug into the computer or the router.
- If your PC doesn't have an Ethernet port, plug the USB end of the Ethernet adapter you bought into one of your computer's USB ports before connecting the computer to the router or modem.

Wait for your computer to connect to the Internet. Once your computer detects the Ethernet connection, it will connect to the network; you should see a computer monitor-shaped icon appear on the right side of the taskbar where the "Wi-Fi" icon previously was. At this point, you can begin using the Internet on your PC.

Setting up a wireless network in Windows

Windows 11 Windows 10 Windows 7 Windows 8.1

A wireless network at home lets you get online from more places in your house. This article describes the basic steps for setting up a wireless network and starting to use it.

Get the right equipment

Before you can set up your wireless network, here's what you'll need:

Broadband Internet connection and modem: A broadband Internet connection is a high-speed Internet connection. Digital Subscriber Line (DSL) and cable are two of the most common broadband connections. You can get a broadband connection by contacting an Internet service provider (ISP). Typically, ISPs that provide DSL are telephone companies and ISPs that provide cable are cable TV companies. ISPs frequently offer broadband modems. Some ISPs also offer combination modem/wireless routers. You can also find these at computer or electronics stores, and online.

Wireless router: A router sends info between your network and the Internet. With a wireless router, you can connect PCs to your network using radio signals instead of wires. There are several different kinds of wireless network technologies, which include 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac, and 802.11ax.

Wireless network adapter. A wireless network adapter is a device that connects your PC to a wireless network. To connect your portable or desktop PC to your wireless network, the PC must have a wireless network adapter. Most laptops and tablets—and some desktop PCs come with a wireless network adapter already installed.

To check whether you're PC has a wireless network adapter:

1. Select **Start**, type **device manager** in the search box, and then select **Device Manager**.
2. Expand **Network adapters**.
3. Look for a network adapter that might have **wireless** in the name.

Setting up the modem and Internet connection

After you have all the equipment, you'll need to set up your modem and Internet connection. If your modem wasn't set up for you by your Internet service provider (ISP), follow the instructions that came with your modem to connect it to your PC and the Internet. If you're using Digital Subscriber Line (DSL), connect your modem to a phone jack. If you're using cable, connect your modem to a cable jack.

Positioning the wireless router

Put your wireless router somewhere where it will receive the strongest signal with the least amount of interference. For better results, follow these tips: **Place your wireless router in a central location**. Place the router as close to the center of your home as possible to increase the strength of the wireless signal throughout your home.

Position the wireless router off the floor and away from walls and metal objects, such as metal file cabinets, The fewer physical obstructions between your PC and the router's signal, the more likely that you'll be using the router's full signal strength.

Reduce interference. Some networking equipment uses a 2.4 gigahertz (GHz) radio frequency. This is the same frequency as most microwaves and many cordless phones. If you turn on the microwave or get a call on a cordless phone, your wireless signal might be temporarily interrupted. You can avoid most of these issues by using a cordless phone with a higher frequency, such as 5.8 GHz.

Securing your wireless network

Security is always important; with a wireless network, it's even more important because your network's signal could be broadcast outside your home. If you don't help secure your

network, people with PCs nearby could access info stored on your network PCs and use your Internet connection.

To help make your network more secure:

Change the default user name and password. This helps protect your router. Most router manufacturers have a default user name and password on the router and a default network name (also known as the SSID). Someone could use this info to access your router without you knowing it. To help avoid that, change the default user name and password for your router. See the documentation for your device for instructions.

Set up a security key (password) for your network. Wireless networks have a network security key to help protect them from unauthorized access. We recommend using Wi-Fi Protected Access 3 (WPA3) security if your router and PC support it. See the documentation for your router for more detailed info, including what type of security is supported and how to set it up.

Some routers support Wi-Fi Protected Setup (WPS). If your router supports WPS and its connected to the network, follow these steps to set up a network security key:

1. Do one of the following, depending on which version of Windows is running on your PC:
 - In Windows 7 or Windows 8.1, select **Start**, start typing **Network and Sharing Center**, and then choose it in the list.
 - In Windows 10, select **Start**, then select **Settings > Network & Internet > Status > Network and Sharing Center**.
 - In Windows 11, select **Start**, type **control panel**, then select **Control Panel > Network and Internet > Network and Sharing Center**.
2. Select **Set up a new connection or network**.
3. Select **Set up a new network**, and then choose **Next**.

The wizard will walk you through creating a network name and a security key. If your router supports it, the wizard will default to Wi-Fi Protected Access (WPA2 or WPA3) security. We recommend that you use WPA3 if you can, because it offers better security than WPA2, WPA, or Wired Equivalent Privacy (WEP) security. With WPA3, WPA2 or WPA you can also use a passphrase, so you don't have to remember a cryptic sequence of letters and numbers.

Write down your security key and keep it in a safe place. You can also save your security key on a USB flash drive by following the instructions in the wizard. (Saving your security key to a USB flash drive is available in Windows 8 and Windows 7, but not in Windows 10 or Windows 11.)

Use a firewall. A firewall is hardware or software that can help protect your PC from unauthorized users or malicious software (malware). Running a firewall on each PC on your network can help control the spread of malicious software on your network, and help protect your PCs when you're accessing the Internet. Windows Firewall is included with this version of Windows.

Why my computer cannot connect to the network?

Check for Physical Connectivity Issues

sometimes internet connection may fail due to simple things like a loose or unplugged network cable, modem, or router. If you're on a wireless network, your computer's wireless network interface card might be turned off

What would you troubleshoot with a computer that cannot connect on the Internet?

Restarting your modem and router should be the first thing you do when encountering an internet signal issue. Don't skip this step! This is almost always what tech support will ask you to try first, as it often solves the problem. To restart your equipment, unplug the power cable for 60 seconds and plug it back in

Networking revision

1. What is a Link?
2. What are the layers of the OSI reference model?
3. What is a LAN?
4. What is a node
5. What are routers?
6. What is a point to point link?
7. What is anonymous FTP?
8. What is a subnet mask?
9. What is the maximum length allowed for a UTP cable?
10. What is data encapsulation?
11. Describe Network Topology
12. What is a VPN?
13. Briefly describe NAT
14. What is the job of the Network Layer under the OSI reference model?
15. How does a network topology affect your decision to set a network?
16. What is RIP?
17. What are the different ways of securing a computer network?
18. What is NIC?
19. What is WAN?

20. What is the importance of the OSI Physical Layer?
21. How many layers are there under TCP/IP?
22. What is a private IP address?
23. What is NOS?
24. Give any two methods of connect computer to an Internet network?
25. What would you troubleshoot with a computer that cannot connect on the Internet?
26. Why my computer cannot connect to the network?
27. Some routers support Wi-Fi Protected Setup (WPS). If your router supports WPS and it's connected to the network. Which steps followed to set up a network security key?
28. Which Position the wireless router off the floor and away from walls and metal objects
29. To check whether you're PC has a wireless network adapter?

Chapter XI: LOPTOPS AND MOBILE DEVICES

Introduction: This chapter discussed the features and functionality of LOPTOPS and mobile devices .as well how to remove and install internal and external components. A laptop is a personal computer that can be easily moved and used in a variety of locations. Most laptops are designed to have all of the functionality of a desktop computer, which means they can generally run the same software and open the same types of files.

The features of Laptop

- Power supply. The laptop's internal power supply recharges the computer's rechargeable battery.
- Central processing unit (CPU).
- Graphics processing unit (GPU).
- RAM.
- Storage.
- I/O ports.
- Display.

- Keyboard and touchpad.

Important smart phone features

- Internet access.
- A web browser.
- The ability to sync more than one email account to a device.
- Embedded memory.
- A hardware or software-based QWERTY keyboard.
- Wireless synchronization with other devices, such as laptop or desktop computers
- the external parts of a laptop.
- The outer parts of a laptop typically include a display screen, keyboard, touchpad, ports, webcam, microphone, and speaker.
- Users can make and receive phone calls, and some cell phones also offer text messaging. A smart phone has more advanced features, including web browsing, software applications and a mobile OS. Smart phones also offer capabilities such as biometrics support, video chatting and virtual assistants.

The internal component of computer

- Motherboard. The motherboard is the computer's main circuit board.
- CPU/processor.
- RAM (random access memory).
- Hard drive.
- Power supply unit.
- Video card.
- Network card.
- Bluetooth card (or adapter).

Building a Desktop Computer from Parts

1. Step 1: Get the Computer Components.
2. Step 2: Install the Power Supply.
3. Step 3: Install the CPU on the Motherboard.
4. Step 4: Install the RAM.
5. Step 5: Install the Motherboard.

6. Step 6: Install the Hard Drive and CD/DVD Drive.
7. Step 7: Install the Video C.

The following concepts from this chapter are important to remember:

- a. -Laptops and mobile devices are light weight and can operate on battery power.
- b. -Laptops use the same types of parts as a desktop computer so that peripheral devices can be Inter changeable mobile devices can also use some of the same peripheral devices.
- c. -Essential input devices, such as a keyboard and tract pad are built into laptops to provide similar functionality as desktop computers.
- d. Same laptops and mobile devices use touch screen as input devices.
- e. -The eternal components of laptops are typically smaller than desktop components because they are designed to fit into compact spaces and conserve energy.
- f. -Connected to the circuit board to keep the device compact and light weight.
- g. -Laptops feature function keys that can be pressed in combination with the in key. The functions performed by these keys are specific to the laptop model.
- h. Docking stations and part replications can increase the functionality of laptops by providing the same types of parts that are featured on desktop computers.
- i. Same mobile devices use docking station to charge or use peripheral devices.
- j. Laptops and mobile devices must commonly feature LCD or LED screens, many of which are to uses screen.
- k. Back lights illuminate LCD and LED laptop displays .OLED display has no back light.
- l. The power setting of laptop batteries can be configured to ensure that power is used efficiently.
- m. Laptops and mobile devices can feature a number of wireless technologies including Bluetooth, infrared, WI-FI and the ability to access cellular WANS.
- n. Laptops provide number of expansion possibilities .uses can add memory to increase performance make use of flash memory to increase storage capacity or increase functionality by using expansion card Same mobile devices can add more storage capacity by up in more flash memory , such us micro SD cards.
- o. Grading or more flash memory, such us micro SD cads.
- p. Laptop components consist of CRUS and FRUS.
- q. Laptop components should be cleaned regularly in order to external the life of the laptop.

How to find the trouble shooting answer of laptop

Select Start > Settings > Update & Security > Troubleshoot, or select the Find troubleshooters shortcut at the end of this topic. Select the type of troubleshooting you want to do, and then select Run the troubleshooter. Allow the troubleshooter to run and then answer any questions on the screen.

Revision

1. What is the laptop? 2. Give the internal component of computer?
3. How to find the trouble shooting answer of laptop?
4. Which steps followed to building a Desktop Computer from Parts?
5. State the importance's of smart phone features?
6. State the features of Laptop?

Chapter XI:PRINERS

Introduction: this chapter various types of printers were discussed .you learned that there are many different types and sizes of printer, each with different capabilities, speeds and uses .You also learned that printers can be connected directly to computer or shared across a network

The chapter introduced the different types of capable and interface available to connect a printer.

Some printers have low output and are adequate for home use, whereas other printers have a high output and are designed for commercial use.

Printers can have different speeds and quality of print.

Older printers use parallel cables and parts .new printers typically use USB or fire wire cables and connects.

With newer printers, the computer automatically installs the necessary driver.

If the device drivers are not automatically installed by the computer, download them from the manufacturer's .website or use the supplied CD.

Most optimization is done through software drivers and utilities.

After you set up the printer, you can share the device with other users on the network. This arrangement is cost efficient because every user does not need to have a printer.

A good preventive maintenance program extends the life of the printer. Many parts inside printers contain high voltage or become very hot with use.

Use a sequence of steps to fix a problem; start with simple tasks before you decide on a course of action. Call a certified printer technician when a problem is too difficult for you to fix.

To Print a document in Word

1. Select File > Print.
2. To preview each page, select the forward and backward arrows at the bottom of the page. If the text is too small to read, use the zoom slider at the bottom of the page to enlarge it.
3. Choose the number of copies, and any other options you want, and select the Print button.

To change the global configuration of printer in window 8 or 7 use the following path:

- 1 Start > Control panel > Devices and Printers > right click the Printer.
- 2 Start > control panel > Printers and Faxes > right click the printer.

Configuration sharing Printer online:

Start >Control Panel > Network and Sharing center > Change advanced Sharing settings.

Control Panel > Printers > right click the printer to share and choose.

Share this printer and enter the desired shared printer name.

Verify that sharing has been successful in the printer windows.

How to Scan a document from computer

To scan a document on a printer place a document face-down in your scanner. you'll also want to make sure that your scanner is on and connected to your computer before proceeding.

- Windows, go to start>Scan> Setting> Devices> Printers and Scanners.
- Then, Choose a Printer and select manage> Scanner>Open scanner> Scan.
- On a Mac, go to Apple menu> system preferences >Printers& scanners. Choose a Printer and Select SCAN >Open Scanner>Scan.

Steps Connecting to a shared printer

Step1: Choose control panel> Printers > Add a printer

Step2: the Add printer Wizard appears.

Step3: Select add a network, wireless or Bluetooth printer.

Step4: A list of shared printers will appear. If the printer is not listed “Select **the printer that wanted which is not listed**”.

Step 5: after selecting the Printer click “**NEXT**”

Step6: A virtual printer port is created and displayed in Add a printer window.

There are same different types of printer

- Inkjet printing
- Laser Printer
- Thermal printer
- 3D printing
- Daisy wheel printing
- Line printer
- Multifunction printer
- LED printer
- Plotter
- Solid Ink printers
- Photo printer

- HP LaserJet
- All-in-One Printer
- Label printer
- Large-format Printer
- Supertank printers
- Plotter Printer
- Solid Ink printer
- Photo inkjet printers
- Portable printers
- Epson
- A3 printers
- Bubble Jet Printer
- Mechanical printer

The five 5 types of printers



From compact and simple to complex and sophisticated, there are many types of printers on the market. However, there are six types of printers that are tried and tested: inkjet printers, laser printers, solid ink printers, continuous ink printers, LED printers, dot matrix printers and A3 printer

The different size of printer

The most popular formats of the traditional sizes are the Letter

(8.5 × 11 inches),

Legal (8.5 × 14 inches) and

Tabloid (11 × 17 inches) formats.

You more than likely use these formats in your everyday life

Paper Size Guide - A0, A1, A2, A3, A4, A5, A6

Popular paper sizes and printing formats: A0, A1, A2, A3, A4, A5, A6, A7, A8 ; A0, 841mm X 1189mm ; A1, 594mm X 841mm ; A2, 420mm X 594mm ; A3, 297mm X 420mm ; A4 .

Which is bigger A4 or A5?



For example the most commonly used paper size is A4 (297mm x 210mm) and the next paper size is A5 (210mm x 148.5mm) which is equal to half of the A4 dimensions

Which is biggest A5 or A3?

A3 is bigger than A4, A5, A6, A7, A8, A9 and A10 but half the size of A2.

The Different capability of printers

Printer capability attributes are general printing attributes that specify such printer characteristics as page margin, rotation, and text printing capabilities that affect all paper sizes and orientations. If a data type is listed but not supported by the printer, it is ignored optional.

The printing capacity of a printer



Consider that a typical personal printer holds about 100 to 150 sheets of paper in a single tray, while a business printer will hold a minimum of 250 sheets. Higher-end models may hold 500 to 1000 or more pages in a standard or upgraded configuration

An inkjet printer is a computer peripheral that produces hard copies of a text document or photo by spraying droplets of ink onto paper. A typical inkjet printer can produce color printing copies with a resolution of 1200 x 1440 dpi.

High volume laser printers were designed to turn-out large quantity prints at a faster rate. High volume laser printers are designed for: Speed. Equipped with powerful engines – high volume laser printers can deliver your documents as fast as 55 pages per minutes, depending on the model.

Speed of printer

Print speed is the estimated amount of time it takes your printer to produce a single print. The actual print speed depends on what you are printing (text or images) what cartridges you are using (black or color) the quality of the print and the paper type

Many inkjet printers are rated at about 15 pages per minute for black ink. Laser printers usually print twice that fast. Some high-volume monochrome laser printers print as fast as 100 pages per minute. Choice of printer: Any printer advertised as high-volume is likely to be lightning fast

The mean when a printer is wired or WIFI:

Wired printers connect directly to the computer you are printing from with a cable. This is usually via a USB cable; however, older printers may use a proprietary

Wireless printers, also known as WiFi printers, can connect to a network without needing to be hard-wired/cabled into that network. Once a wireless printer is connected to a WiFi network, the computers, Smartphone's and tablets also connected to that network can print to the WiFi printer.

A wireless printer is similar to a network printer, but instead of using a cable to connect, the printer connects via Wi-Fi. In addition to the normal network setup, you will have to enter your Wi-Fi password to allow the device to see and connect to the network

How to connect wireless printer

two methods to connect to a printer wirelessly: For printers, it usually means [Wi-Fi](#), [Bluetooth](#) or both.

Place the printer near the Wi-Fi router. Open the Setup, Network, or Wireless settings menu, and then select Wireless Setup Wizard. Select the name of your network, and then enter the password to complete the connection.

The same uses of printer can be used for:

- Getting the printout of important documents.
- To prepare projects in schools or colleges.
- To print books.
- To print the hardcopy of presentation in business or companies.

Revision

1. What are the most cost effective options? ...
2. What paper stock can I use? ...
3. Can I use an environmentally friendly material? ...
4. What print finishes can I use? ...
5. What size should I be using for a folded leaflet? ...
6. Do I need to allow for creep? ...
7. What are your artwork requirements
8. What are the four common printing methods?
9. What are paths followed to change the global configuration of printers?
10. How to designate a default printer?
11. How to configure sharing printer online?
12. Give six steps followed for connecting to a shared printer?
13. A list of shared printers will appear. What can you do if the printer you want is not listed?

Chapter XIII: COMPUTER SECURITY

This chapter discussed computer security and why it is important to protect computer equipment, network, and data. Threats procedures, and preventive maintenance relating to data and physical security were described to help you keep computer equipment and data safe.

Some of the important concepts to remember from this chapter are:

- Security threats can come from inside or outside of an organization
- Viruses and worms are common threats that attack data. With patches and service packs.

Computer security, cyber security (cyber security), digital security or information technology security (IT security) is the protection of [computer systems](#) and [Networks](#) from attack by malicious actors that may result in unauthorized information disclosure, theft of, or damage to [hardware](#), [software](#) or [Data](#), as well as from the [disruption](#) or misdirection of the services they provide. ^{[1][2]}

The field is significant due to the expanded reliance on [computer systems](#), [the Internet](#), and [wireless network](#) standards such as [Bluetooth](#) and [Wi-Fi](#), and due to the growth of [Smart devices](#), including [SMART PHONE](#), [Televisions](#), and the various devices that constitute the

Internet of Thing(IoT). Cyber security is one of the most significant challenges of the contemporary world, due to both the complexity of information systems and the societies they support. Security is of especially high importance for systems that govern large-scale systems with far-reaching physical effects, such as [Power distribution, elections](#), and finance

some practical steps that will help you minimize the exposure of your mobile device to digital threats.

1. Use strong passwords/biometrics. ...
2. Ensure public or free wifi is protected.
3. Utilize a VPN.
4. Encrypt your device.
5. Install an Antivirus application.
6. Update to the latest software.
7. Be discerning.
8. Keep backups.

Methods of securing a mobile device Securing Your Mobile by using **Fingerprint Unlock**

Newer Android phones have a fingerprint sensor you can set up. Fingerprints can offer more secure authentication and protection than passwords. To start, go to your security settings to register your fingerprint or prints.

How to turn on Fingerprint Unlock:

Settings > Lock screen and security > Screen lock type > add your fingerprint

Devices

- About securing your device.
- Secure your screen with a strong password.
- Turn on your device's auto-lock feature.
- Install a trusted security app.

- Be cautious when installing apps.
- Install operating system (OS) updates when available.
- Avoid using unsecured, public Wi-Fi networks

The different types of cyber attacks on our list:

- Malware Attack. This is one of the most common types of cyber attacks.
- Phishing Attack.
- Password Attack.
- Man-in-the-Middle Attack.
- SQL Injection Attack.
- Denial-of-Service Attack.
- Insider Threat.

Seven ways to Prevent Cyber attacks. In today's world, cyber security is as important as ever.

- Train your staff.
- Keep your software and systems fully up to date. ...
- Ensure Endpoint Protection.
- Install a Firewall.
- Backup your data.
- Control access to your systems.
- Wifi Security
- Zero Trust

What are two types of locking devices in security?

Although there are many types of locks, the four most common are padlocks, deadbolts, knob locks, and levers.

A strong password

Strong password example:

Password: m#P52s@ap\$V

Password is one that is designed to be hard for a person or program to guess. Because the purpose of a password is to ensure that only authorized users can access resources, a password that is easy to guess is a cyber security risk

Application Security

The importance of security in the workplace is at an all time high. People and visitors are regularly [backed in offices](#). And a full office can be a target for security breaches, both physical and digital.

[Workplace threats](#) are getting more and more sophisticated and complex. Whether it's IT failure, theft, workplace incidents, or phishing attacks, organizations can't afford to let their guard down. Instead, they must proactively anticipate threats in order to avoid them and ensure the safety and security of their business. It can feel like an overwhelming amount to do. But it doesn't have to be with the right planning, tools, and teams behind **the job!**

You'll learn same Revision

Question: 1

Firewalls are to protect against

- (A) Virus Attacks
- (B) Fire Attacks
- (C) Data Driven Attacks
- (D) Unauthorized Attacks

Ans: D

Unauthorized Attacks

Question: 2

The first computer virus is

- (A) The famous
- (B) HARLIE
- (C) PARAM

(D) Creeper

Ans: D

Creeper

Question: 3

A hard copy would be prepared on a

(A) Printer

(B) Joystick

(C) Trackball

(D) All of these

Ans: A

Printer

Question: 4

The first PC virus was developed in

(A) 1980

(B) 1986

(C) 1988

(D) 1999

Ans: B

1986

Question: 6

To protect system, there is how many levels of security level?

- (A) One
- (B) Two
- (C) Three
- (D) Four

[View Answer](#)

Question: 7

Lowest level of security system is

- (A) A
- (B) B
- (C) C
- (D) D

Ans: A

A

Question: 8

The security of a system can be improved by

- (A) Audit log
- (B) Threat monitoring

(C) Both (a) and (b)

(D) None of these

Ans: B

Threat monitoring

Question: 9

How many capabilities in CAP?

(A) One

(B) Two

(C) Three

(D) Four

Ans: B

Two

Question: 10

CAP is

(A) Simple and greater power than that of hydra

(B) Complex and less powerful than that of hydra

(C) Simpler and less powerful than that of hydra

(D) None of these

Ans: C

Simpler and less powerful than that of hydra

REVISION

1. What is workplace security?
2. The importance of workplace security?
3. 4 reasons why workplace security is important?
4. Tools that maximize security?
5. What are 3 methods of securing a mobile device?
6. What steps if any do you take to make your smart phone more secure?
7. What are three ways to keep your devices secure?
8. What are the 4 main security tips you can use to protect your mobile operating system?
9. What are the 9 ways to secure your mobile device?
10. What are the basic steps to use to secure an operating system?
11. What are the best practices for security of Android phones?
12. What are the four layers of security within Android?
13. Which of the following security guidelines shall be followed for mobile security?
14. What is an example of securing your mobile devices?
15. How do you physically secure a mobile device?
16. What is the most secure phone lock method?
17. What are two types of locking devices in security?
18. What is an example of screen lock method?
19. What are the different types of locks on phones?

20. What are seven ways to Prevent Cyber attacks?
21. How to turn on Fingerprint Unlock?

Chapter XIV: THE IT PROFESSIONAL

Introduction: this chapter, you learned about the relationship between communication skills and troubleshooting skills you have learned that these two skills need to be combined to make you successful technician .You also learned about the legal aspects and ethics of dealing with computer technology and the property of the customer. An IT professional is someone who develops the information network and infrastructure for an organization. They create and manage the servers, computers, databases and software programs necessary for people at a company to communicate and share information.

The following concepts from this chapter are important to remember.

To be a successful technician, you must practice good communication skills with customers and co-workers these skill are us important as technical expertise.

You should always conduct yourself in a professional manner with you customers and co-workers professional be hair increases customer confidence and enforces your credibility, you should also learn to recognize the classic signs of difficult customer and lean what to do and what not to do when you are on call with this customer.

There are techniques that you can use to keep a difficult customer focused on the problem during a call; primarily you must remain calm and pertinent questions in an appropriate fashion. These techniques keep you in control of the call.

There is right way and a wrong way to put a customer on hold or transfer a customer to another technician learn and use right way every time. Doing either of these operation incorrectly can negatively affect your company's relation with its customer.

Netiquette is a list of rules to use whenever you communicate through E-mail, Text Message, instant messaging and blogs.

You must understand and comply with your customer's SLA. If the problem falls outside the parameters of the SLA, find the positive ways of telling the customer what you can do help rather than what you can't do. In special circumstances you might decide to escalate the work order manages.

In addition to the SLA, must follow the business policies of the company. These policies include how your company priorities calls how and when to escalate call to management and when you are allowed to take breaks and lunch.

A computer technician's job stressful, you rarely meet a customer who is having good day. You can evaluate some of the stress management techniques every day.

There are ethical and legal aspects of working in computer technology. You should be a work if your company's policies and practices .In addition ,you might need to familiarized yourself with your local or country's trade mark and copyright laws.

A software license is a contract that outlines the legal use or, redistribution of that software. Most software license grant an end user permission to use one or more copies of software .types also specifies the end user's right and restriction. There are many different types of software licenses including personal, enterprises, open source and commercial.

Collecting and Analyzing data from computer systems, networks, and wireless, communication and storage devices is called computer forensic.

Cyber laws explain the circumstances under which data can be collected from computer storage devices, networks and wireless communication. First response is the term used to describe the official procedures employed by those people who are qualified to collect evidence.

Even if you are not a system administration or computer forensics expert it is a good habit to create detailed documentation of all the work that you do, being able to prove how evidence was collected and where it has been between the time of collection and its entry into the court proceeding is known as the chain custody.

The qualifications do you need to be an IT professional.

The minimum degree that most IT jobs require is a **bachelor's degree**. Areas of study for this field include computer science, information technology management and computer engineering. Common courses of study include: Information technology system analysis

The reason why an IT professional is important?

In any case, the importance of IT professionals is undeniable. **Without them, a company would not have the technological resources needed to remain competitive in an increasingly demanding market**, nor would they be able to keep abreast with the latest resources in order to ensure the productivity of its employees

When deciding what degree to get for an IT job, you should definitely consider these seven popular computer degrees:

- Information Technology and Information Systems.
- Computer Science.
- Information Science.
- Computer Animation.
- Software Engineering.
- Computer Engineering.

- Cyber security.

How do I start a career in IT?

If you're unsure how to start a career in IT, consider following these five steps!

1. Grow your network with those in the field of IT.
2. Perfect your coding skills.
3. Get an education or job experience in a related field.
4. Prepare to answer technical questions.
5. Research the possible roles and positions available.

Is a software engineer and IT professional?

IT professionals are the "big tent," but many people who belong under it think of themselves as something else first: software engineers, database administrators, Web designers, and so on. If you identify strongly enough with a subspecialty, you might not think of yourself as an IT pro at all.

What are the duties of an IT specialist?

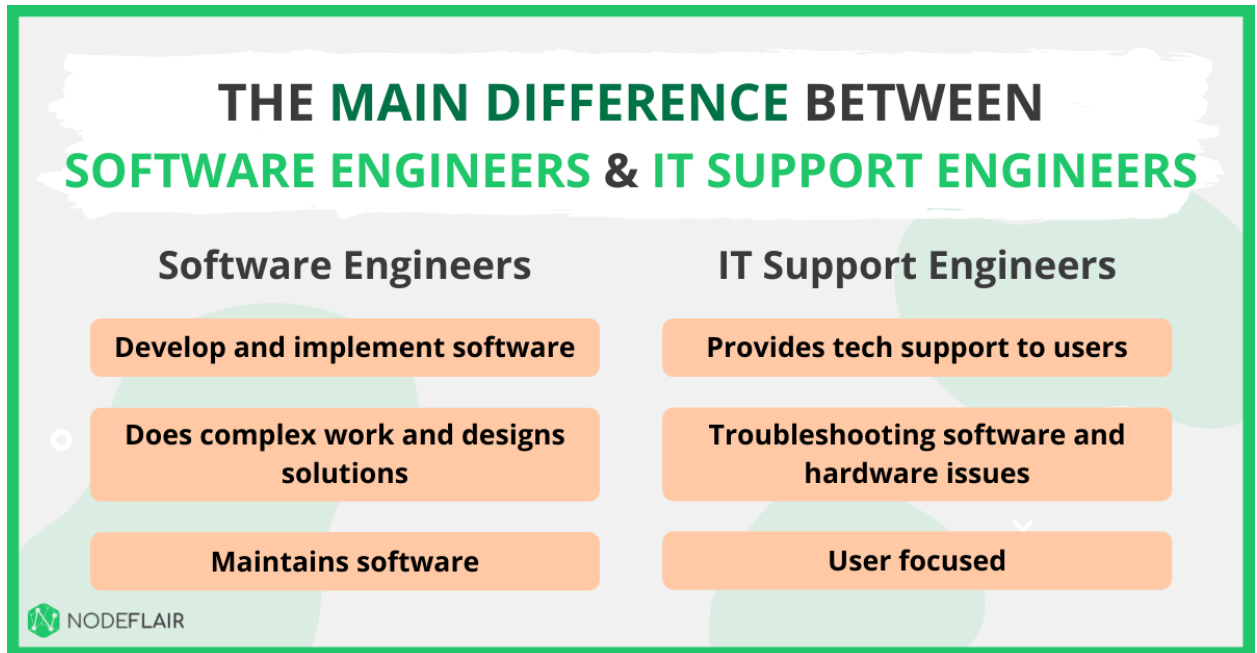
You will be responsible for installing or upgrading components, setting up software, assisting with network administration, and resolving all IT support issues. To be successful as an IT specialist, you should have an in-depth knowledge of various computer hardware and software technologies.

What is the difference between IT specialist and IT technician?

For example, IT Technicians are responsible for installing computers, routers and other devices for company employees. In contrast, IT Specialists assist Technicians in troubleshooting recurring problems that require additional expertise and making repairs to specific types of computer systems or devices.

IT professional also known as

IT professionals, or computer technicians, perform many tasks, including the installation and maintenance of software and hardware.



Which is better IT or software engineering?

Software engineers do complex work and design solutions that IT support engineers are unable to. In a nutshell, they are responsible for designing and implementing software. Being aware of the differences helps ensure that we get the best person to solve our tech related issues.

What is information technology called now?

Information technology is now synonymous with any form of digital communications and technologies. Everything falls under the grasp of Information Technology, from checking emails to running software on laptops to making a zoom call with colleagues.

Revision

1. Define the term IT Profession?
2. State the differences between software engineer and IT support engineer?
3. What is information technology called now?
4. What are the duties of an IT specialist?

5. How do I start a career in IT?
6. When deciding what degree to get for an IT job, you should definitely consider these seven popular computer degrees?
7. Why are IT professionals important?
8. What are the qualifications do you need to be an IT professional?
9. What are techniques that you can use to keep a difficult customer focused on the problem during a call; primarily?
10. What is the meaning of term Netiquette?
11. Explain Cyber laws?

Chapter XV: ADVANCED TROUBLESHOOTING

In this chapter, you were given multiple opportunities to hone your troubleshooting knowledge and skills. This chapter covered advanced diagnostic questions to ask when gathering information about a computer hardware and software problems. It also presented more advanced versions of problems and solutions for computer components and peripherals, operating systems, Networks and Security.

In lab you fixed a problem .you then talked someone else through diagnosing and fixing a problem as a call center technician would.

QUESTION TYPE

Activity to identify the problem

Closed-ended question

Open-ended question

Closed –ended:

- Has anyone else used your computer recently?
- Have you received any error messages on your computer?
- Can you reproduce the problem?
- Have you changed your pass-word recently?
- Are you currently logged into the network?

Opened-ended:

- What problems are you experiencing with your computer or network?
- What software has been installed on your computer recently?
- What were you doing when the problem was identified?
- What hardware changes have been made recently to your computer?

Activity to identify the front panel connectors

System speaker: Used audits indicate the computer's status if there is a hardware problem, a series of diagnostic beeps is issued to indicate the type of problem.

USB: often consist of nine or ten pins arranged in two rows, but can also have four or five pins or individual groups of four and five pins

Power button: turns the computer on or off

Drive LEDs: Remains lit or blinks when the system is reading or writing data.

Power LEDs: Remains lit when the computer is on, and often the computer is in sleep mode.

Reset button: Restarts the computer without turning it off.

Audio: Connects ports for jacks on the outside to convert microphones or external equipment as a signal processors, mixing boards, and instrument.