

3 Month Computer Basic Course Syllabus

This syllabus outlines a comprehensive 3-month computer basic course, covering fundamental concepts, essential software applications, and practical skills for navigating the digital world.

Fundamentals of Computer: Introduction

The term 'Computer' is derived from the Latin word 'Computar' which means to calculate.

C = Commonly

O = Oriented

M = Machine

P = Properly

U = Used for

T = Training

E = Education

R = Research

Computer is an electronic machine, that process the input data according to the given instruction & gives output as a result. It also saves the result for future use.



Input

Process

Output

This flowchart illustrates the fundamental operation of a computer, transforming raw input into meaningful output through a processing stage.

Input / Output & Processing of the Computer

INPUT DEVICES

- Keyboard
- Mouse
- Scanner
- Digital Camera
- Joystick
- Pen drive

OUTPUT DEVICES

- Monitor
- Printer
- Plotter

PROCESSING OF THE COMPUTER: (CPU)

The most essential part of the computer that perform the various operations provided. It is also called the brain of the computer. It is mainly divided into three categories:

- **Arithmetic & logic Unit:** It performs all arithmetical as well as logical operations such as addition, subtraction, multiplication & division. Also it performs the comparison between the entities & thus help in decision making to the computer.
- **Control Unit:** It controls the flow of instruction within the system. CU gets the program instruction from memory & executes them one after another.
- **Memory Unit:** It saves the instructions that are being executed for the future use. Each instruction takes certain memory for its proper execution.

Components of the CPU

- Motherboard
- Hard disk
- RAM
- ROM
- Processor
- SMPS & Connecting wire
- UPS
- DVD/CD R-W
- Floppy Drive
- Modem
- Graphics Card
- Sound Card

Memory Device & Types of Computers

The storing capacity of computer expressed in bytes. Bytes store one character of data.

0.1	1 bit
4 bits	1 nibble
8 bits	1 byte
1 byte	1 character
1024 bytes	1 Kilobyte (KB)
1024 KB	1 Megabyte (MB)
1024 MB	1 Gigabyte (GB)
1024 GB	1 Terabyte (TB)

Types of Memory

There are mainly two types of memory:

- **Primary Memory:** This is the main memory of the computer. This memory is used frequently by the CPU for execution of the instructions. There are again two types of Primary Memory.
 - **RAM:** RAM stands for Random Access Memory. Initially every task is stored in RAM & then executed or stored in Hard disk. It is volatile, it stores data temporarily. So no data will remain when the power is switched off. It ranges from 64 MB to 16 GB.
 - **ROM:** ROM stands for Read Only Memory. It is a programming chip, where all the system information are recorded & can't be changed. Its types are PROM, EPROM, EEPROM, etc. It is non-volatile.
- **Secondary Memory:** These are the storage devices & are used to save the programs files permanently. There are different types of Secondary Memory. They are:

Magnetic Tapes, Zip disk, etc.

- Hard disk (ranges from 40 GB to 1 TB)
- Floppy disk (1.44 MB)
- CD (700MB), DVD (4.7 GB, 8.5 GB)
- Blue ray Disc (25 GB, 40 GB)
- Pen Drive (ranges from 128 MB to 256 GB)

Types of Computers



ON THE BASIS OF BRAND:

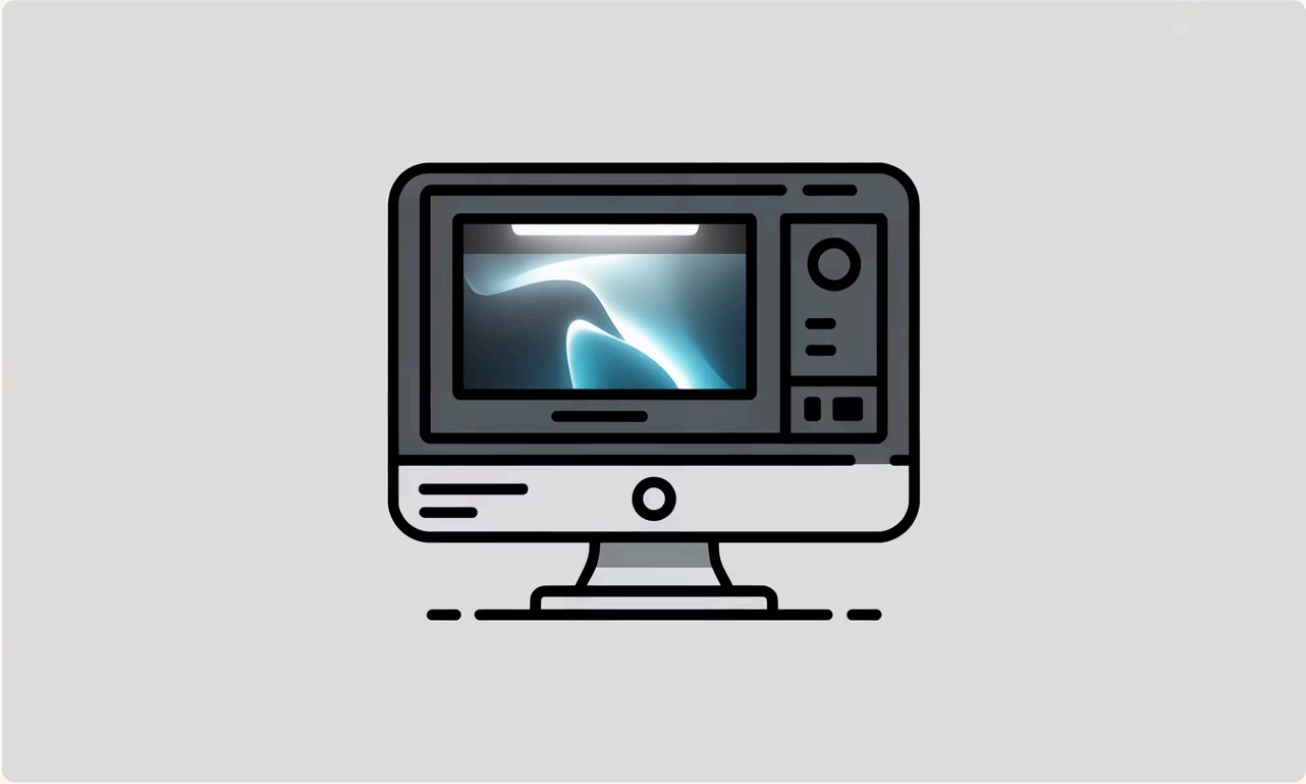
- IBM PC
- IBM compatible
- Apple/ Macintosh

ON THE BASIS OF WORKING:

- Analog computer
- Digital computer
- Hybrid computer (Digital + Analog)

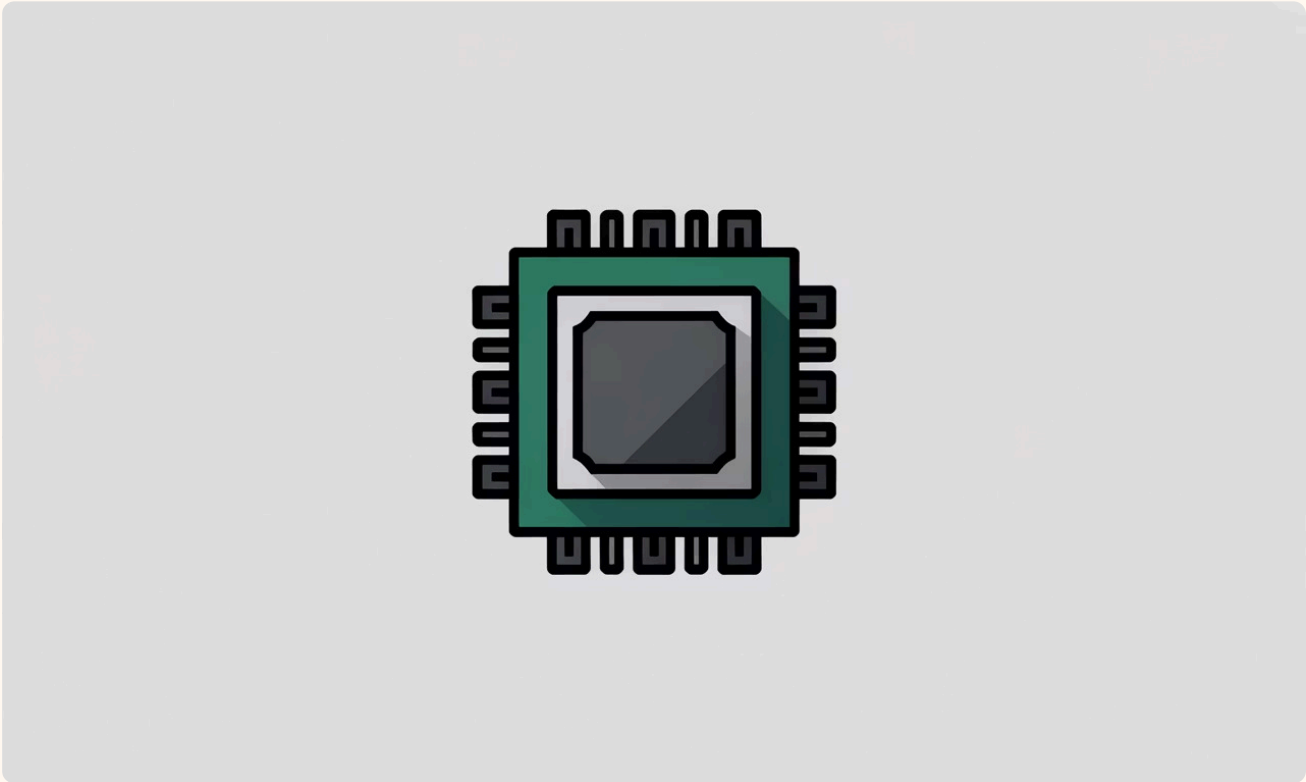
ON THE BASIS OF SIZE:

- Mainframe computer
- Mini computer
- Super computer
- Work station
- Micro computer
 - *Desktop computer*
 - *Laptop computer*
 - *Palmtop computer*
- Network computer



ON THE BASIS OF PROCESSING:

- XT/ 8086 & 8088 processor
- AT 286
- AT 386
- AT 486
- Pentium I, II, III, IV



Characteristics & Generations of Computer

SPEED AND ACCURACY

Computer performs complex calculation at a very high speed. Computer takes a few micro/nano second to execute an operation.

Fraction of a second:

- 1 millisecond= 1/1000 of second
- 1microsecond= 1/1000000 of a second
- 1 nanosecond= 1/1000000000 of a second
- 1 Pico second= 1/1000000000000 of a second

Computer always gives 100% actual outputs (result), if the user provides correct Input and Instructions. If any mistake occurs in any calculation they are due to manual error but not of computer. Since it is 100% accurate, it is reliable.

STORAGE

Computer can store a huge amount of data for the future use in auxiliary device like floppy disk, hard disk or compact disk. The storing capacity of computer is expressed in bytes. Normally one byte stores one character of data.

0.1	1 bit
4 bits	1 nibble
8 bits	1 byte
1 byte	1 character
1024 bytes	1 Kilobyte (KB)
1024 KB	1 Megabyte (MB)
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1024 GB	1 Terabyte (TB)

VERSATILITY:

Computers are being used in different fields such as offices, school, hospital, etc. to perform various tasks. Versatile means ability to perform various tasks & computer can capable to do so. A computer can process any kind of data.

DILLIGENCE:

It is a capacity of performing repeated operation without any tiredness & any mistakes. A computer is capable of performing the required tasks continuously with the same speed, accuracy & efficiency without any error.

HISTORY & GENERATION OF COMPUTER

It took thousands of years for the computer to develop in to the present state. Earlier the process of computing was done by counting with their own figures, stones & through scratches on the sand or walls. But this idea is only for the counting of small entities. So later, various types of computing devices such as ABACUS, Napier's bone slide rule, difference engine, lady Augusta Ada Lovelace, etc. On the processing of previous calculating machines & continuous development on them, makes modern computer come to this stage.

Generations of Computer

First generation of computer (1946 to 1958)

- Vacuum tubes are used to electronic circuit
- Storage capacity was limited (1kb to 4kb)
- Slow processing (millisecond)
- High voltage needed up to 150000 volts.
- large in size (51002 feet)
- processing speed is faster than second generation
- minicomputer were in produced during this generation
- Storage capacity in measured in mega byte.

3rd generation of computer (1965 to 1974)

- ICs were used in place of transistor

5th generation of computer (1990 to incomplete...)

- Intelligent processing
- Easy human computing
- computer will understand natural language
- They have artificial intelligence.

2nd generation of computer (1959 to 1964)

- Transistor were used
- processing speed was faster
- Smaller in size(512 feet)
- Input and output device were faster

4th generation of computer (1975 to 1990)

- VLSI and micro processor are used
- processing speed is very high Giga bytes
- very smaller size
- input and output devices were versatile

Applications of Computer & Windows XP Overview

Applications Of Computer:

Now a days, it is difficult to find the field or the criteria in which there is no use of computer. Directly or indirectly there is vast use of computer. However some of the major fields of Computers are given below:

- Personal use.
- School & College
- Graphic designing.
- Audio/ Video mixing.
- Entertainment.
- Design & Modeling.
- Satellites & Networking System.
- Research Center.
- Hospitals.
- Banks & other offices.
- National & Multinational organizations.
- Robotics.

B) Windows XP Overview

1. Some Basic Terminology:

- ❖ AC : Alternating current
- ❖ ALU : Arithmetic and logical unit
- ❖ CD-RW : compact disk re-writable
- ❖ BIOS : basic input and output system
- ❖ CPU : central processing unit
- ❖ FDD : floppy disk drive
- ❖ HDD : hard disk drive
- ❖ MS : Microsoft
- ❖ MS-DOS : Microsoft disk operating system
- ❖ PC : personal computer
- ❖ ROM : read only memory
- ❖ RAM : random access memory
- ❖ DVD : digital video disk
- ❖ CU : control unit
- ❖ ISP : internet service provider
- ❖ WWW : world wide web
- ❖ LCD : liquid crystal display
- ❖ NTFS : network transfer file system
- ❖ USB : universal serial bus
- ❖ XT : extended technology
- ❖ AT : advanced technology

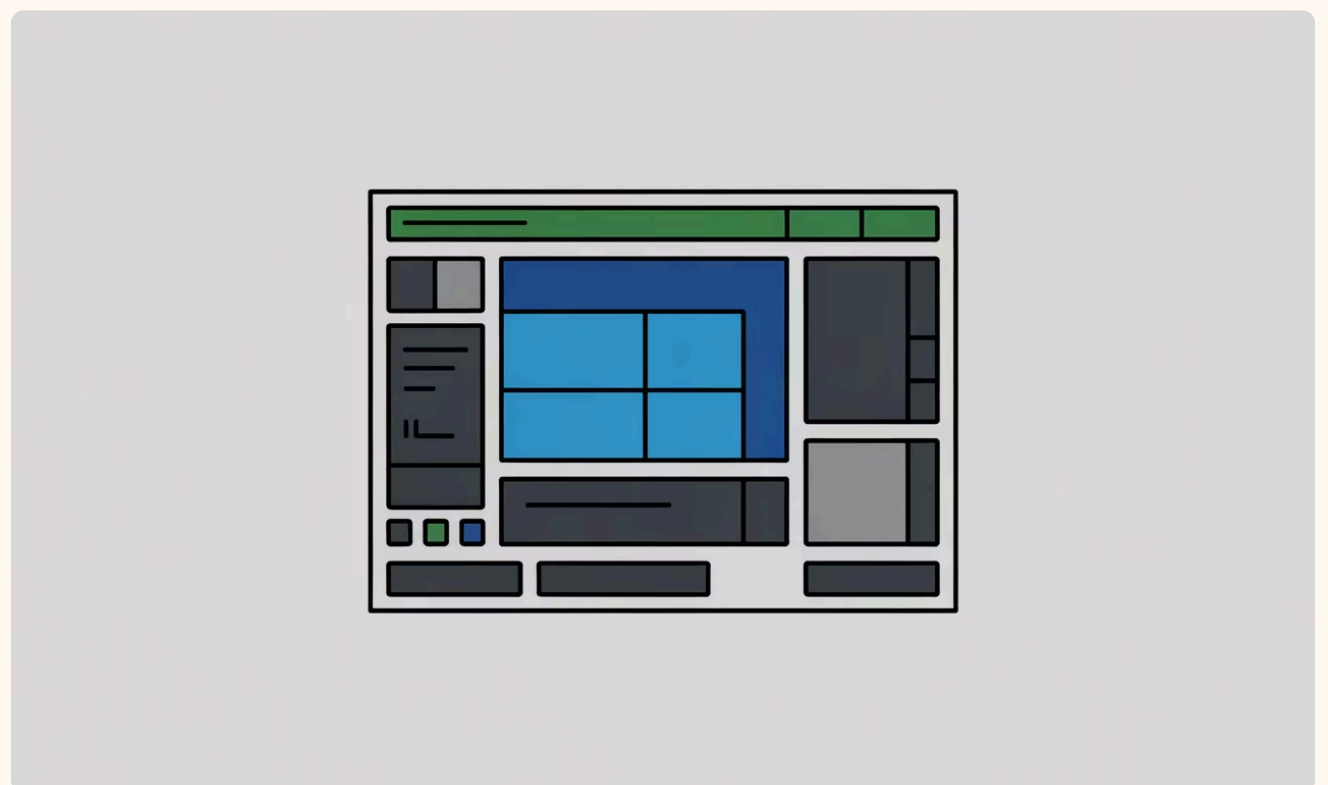


FIG: Windows XP

Windows XP: Typing Skills & Desktop Settings

Types of keys of the board

- Alphabet keys = A, B ...Z
- Number keys = 0, 1, 2...9
- Function keys = F1, F2...F12
- Special keys = Del, Alt, Ctrl.....

Function of keys

- **Caps lock:** - It is used to make the alphabets capital or small. When it is pressed on it gives capital alphabets and when it is off it gives small alphabets. In case of Nepali font it shows half character, when it is on.
- **Enter:** - It is used to break the lines, paragraph or columns.
- **Shift:** - It is used to display capital and small alphabets by holding shift we can bring changes in the character.
- **Tab:** - It is used to give long space between two character and words
- **Space bar:** - It is used to give space between two character and word.
- **Back space:** - It is used to remove character at the back of the cursor.
- **Delete:** - It is used to remove character at the right of the cursor.
- **End:** - It is used to move the cursor at the end of the line.
- **Home:** - It is used to move the cursor at the beginning of the line.
- **Page up:** - It is used to move the cursor one page up.
- **Page down:** - It is used to move the cursor one page down.
- **Esc:** - It is used to cancel any job function.
- **Num lock:** - It is used to lock and unlock the numeric pad.
- **Alt + ctrl:** - For special purposes only
- **Arrows:** - There are 4 arrow keys
- **Down arrow:** - It is used to move the one line down
- **UP arrow:** - It is used to move the one line up
- **Right:** - It is used to move the cursor one character right
- **Left arrow:** - It is used to move the cursor one character left.

✓ HOW TO START THE COMPUTER IN MS-WINDOWS MODE?

- ❖ SWITCH on the electric(AC) power supply.
- ❖ Switch on the volt guard or UPS(uninterrupted power supply)
- ❖ Turn on the power switch of the CPU
- ❖ Turn on the power switch of the monitor

Just wait few minutes when computer display windows environment.

✓ HOW TO SHUTDOWN THE COMPUTER

- ❖ Save and close all the programs
- ❖ Click on start menu
- ❖ Click on Turn off computer
- ❖ Then you will see:-
 - Stand by
 - shut down
 - re-start
- ❖ Click on Turn off

Just wait few minutes, your computer will automatically shutdown.

Some basic terms related to start button

- **Start button:** It is the especial button, is used to start almost all of the programs based on the windows. When you click the start button, you will see a menu, which contains everything you need to begin using windows.
- **Program:** It display a list of program's name and program group that can be directory used
- **Document:** It displays a list of 15 files, which are recently created or opened.
- **Setting:** It displays a list of system component's, which lets you to change the configuration as your requirement.
- **Find:** It provides online help
- **Run:** It helps to run any program by browsing the location and also used to setup any new program.
- **Shut down:** It enables you to shutdown or restarts your computer
- **Log off:** It enables your close the multi user's desktop setting

Basic terms related to windows

- **Desktop:** It is the background area of windows on which windows on which windows, icon, menu and dialog box appear.
- **Icon:** Icon is the graphical presentation of the computer's items. Desktop icons are those icons, which remains on the desktop.
- **Taskbar:** Taskbar is the grey horizontal line location at the bottom of the desktop with start button and indicators. It is especially used for switching between opened programs and folders.

Windows XP: Desktop Settings & Control Panel

Typing Skills:

The keyboard we use is QUERTY Keyboard. The figure is given below:

Number Keys	~	1	2	3	4	5	6	7	8	9	0	-	=	\
	l	r	m	i	i	i	i	i	m	m	r	r	l	l
Top Keys	Q	W	E	R	T	Y	U	I	O	P	[]		
	l	r	m	i	i	i	i	i	m	r	l	l	l	l
Home Keys	A	S	D	F	G	H	J	K	L	;				
	l	r	m	i	i	i	i	m	r	l	l			
Bottom Keys	Z	X	C	V	B	N	M	,	.	/	\			
	l	r	m	i	i	i	i	m	r	l	l			

Here:

1. l = little finger
2. r = right finger
3. i = index finger
4. m = middle finger

space key is pressed by thumb finger.

HOW TO ENTER INTO TYPING PROGRAM : TYPSHALA

- Click on start button → Program → Typshala or,
- Click on start button → Run & then type typeshala.exe on the box & press enter key. or,
- Double click on desktop icon of Typshala.

& typshala will appear like in figure below:

Now choose your key Tab (Home, Top, Bottom , All)

Also choose Level & language. (Options → Fonts → Kantipur/Khaki... → Press Enter Key)

If you want Free typing Then:

Click on Free button → Typing button

& Start Typing....!

2. Desktop Setting & Control Panel:

For Desktop Setting:

- Right Click on Desktop
- Click on properties.

Or,

Start → Control Panel → Display

Then the following box will occur.

Here:

- **Themes:** Changes the current theme on desktop
- **Desktop:** Changes the wallpapers or fill color on background of desktop
- **Screen Saver:** Apply screen saver using photo slideshow, text, flag, ribbons, etc.
- **Appearance:** Just as Themes, but only changes the outlook for windows & have more customizable option.
- **Setting:** Using this features, resolution & refresh rate of the monitor can be adjusted.

Windows XP: Control Panel & MS-DOS

For Control Panel

On category view:

Changing keyboard setting:

Start → Control Panel → Keyboard

Changing Mouse Setting:

Start → Control Panel → Mouse

Changing Time & Date:

Start → Control Panel → date & Time

📁 Organization files and folders:

You can organize the files and folders by using the My computer icon from the desktop.

❖ Creating a new folder:

1. Double-click My computer and then double-click the disk drive or folder in which you want to place the new folder.
2. On the file menu, Select New Folder or right click on mouse --> new --> folder
3. Type the name of the folder and then press enter

❖ Coping or moving a file or folder:

select the item

click on edit --> click copy or move

open folder on which you want to copy the selected item

click --> edit --> paste

❖ Deleting the file or folder:

Choose the file or folder

direct press delete from keyboard

click on yes, if confirmation is asked.

❖ Renaming a file or folder:

click the right mouse button on selected item

click on rename & write a new name

press enter key.

❖ Recycle bin:

It consists of the deleted item for recovery.

We can restore the accidentally deleted item from recycle bin. Or we can delete permanently delete any file from recycle bin

❖ Start button:

Right click on taskbar

→ properties →

choose your option

from dialog box

Click on start tab for

changing the start

button interface.

3. Ms DOS

Ms DOS: Microsoft Disk operating System. It is a popular operating system developed by Microsoft Corporation. It is an TUI (Text user Interface). All commands & correct syntax has to keep in mind & all are in text form.

Some of the common commands are described below:

- ❖ dir: used to open & display any directory (folder) → c:>dir
- ❖ time: displays current time → c:>time
- ❖ date: displays today's date → c:>date
- ❖ cls: makes the screen clear → c:>cls
- ❖ copy: allows user to copy file in different location → c:>copy aaa bbb or c:>copy aaa d:
- ❖ del | erase: it delete the files → c:>del aaa
- ❖ md: makes a new directory → c:>md ram
- ❖ cd: change any folder to directory → c:>cd ram
- ❖ rd: remove directory → c:>rd ram
- ❖ ver: displays the version of MS-DOS → c:>ver
- ❖ exit: close the DOS mode → c:>exit

MS Paint & WordPad

4. Ms. Paint:

▮ Starting System

1. Click on start button.
2. Choose program.
3. Choose accessories.
4. Choose paint and click on it.
or,
5. Click on start Button.
6. Click on Run.
7. Type Mspaint inside the box.
8. Click on Ok.

To show/ hide Tools, Color box, Status bar:

1. Go to View menu.
2. Enable or disable required options by clicking at once.

Saving your work:

After finishing your work.

1. Go to file menu.
2. Click on save.

Or, Direct press Ctrl + S key.

To close and exit from Wordpad

After finishing your work.

1. Go to file menu.
2. click on close.

Or, Direct press Alt + F4 key.

3. Then, click on yes, if you want to save and click on No, if you don't want to save.

Go to image menu → stretch/skew → define needed value → ok

To open the stored file:

1. Go to file menu.
2. Click on open, Direct press Ctrl + O key.

Then, Open dialog box will appear.

3. Type the required file name at file name box or, direct choose the required file, which you want to open.
4. Click on open.

✓ To set the bitmap as desktop wallpaper:

Go to file menu → click on Set as wallpaper → then selected bitmap will appear in your desktop.

✓ To edit color:

Go to option menu → choose edit color → choose the color → click on Ok.

✓ Print:

Go to file menu → print.

To get new document:

1. Go to file menu.
2. Click on new.

Or, Direct press Ctrl + N key.

Then, New dialog box will appear.

3. Choose required document type.
4. Click on ok.

✓ Importing existing image:

Go to edit menu → click on paste → paste from dialog box → choose reqd. image file → open.

✓ To flip or rotate:

Select the reqd. figure → go to image menu → click on flip/ rotate → give your option & click on Ok.

✓ To stretch or skew the image:

5. WordPad

✓ To start WordPad:

1. Start → Programs → Accessories → WordPad
or,
2. Start → run → type WordPad & press enter.

❖ To show/hide Toolbar, format bar, ruler, status bar:

1. Go to view menu.
2. Put or remove the tick mark from required above items.

❖ To save the document first time:

1. Go to file menu.
2. Click on either or save As.
Or,
_direct click on save icon on Toolbar.
- Or,
_ Direct press Ctrl+s key.

Then, save as dialog box will appear.

3. Give required file name.
4. Click on save.

❖ Methods for selecting the text:

1. One word = Double click any where inside the required word.
2. One paragraph = Triple click any where inside the required paragraph.
3. One line = single click just in front of required line.
4. Required text: Click the left mouse button either in initial or final point of the text and drag it up to destination and release it.
5. Whole document = Press ctrl+A key. Or, go to edit menu and click on select all.

❖ Deleting required text:

1. First select required text.
2. Then press either Delete or, Backspace key.

❖ Saving your work:

After finishing your work,

1. Go to file menu.
2. Click on save.

Or, Direct click on save icon on the toolbar.

Or, Direct press Ctrl + S key.

❖ To close and exit from WordPad

After finishing your work,

1. Go to file menu.
2. Click on close.

Or, Direct click on close button of the program.

Or, Direct press Alt + F4 key.

3. Then, click on yes, if you want to save and click on No, if you don't want to save.