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Introduction

ICT is also used to refer to the convergence of audiovisuals and telephone networks with computer networks through a single cabling or link system. There are large economic incentives to merge the telephone networks with the computer network system using a single unified system of cabling, signal distribution, and management. ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliances with them such as video conferencing and distance learning. ICT also includes analog technology, such as paper communication, and any mode that transmits communication.

ICT is a broad subject and the concepts are evolving. It covers any product that will store, retrieve, manipulate, transmit, or receive information electronically in a digital form (e.g., personal computers including smartphones, digital television, email or robots).





TOPIC

Skills framework for the Information Age is one of many models for describing and managing competencies for ICT professionals for the 21st century.

Definition:-

According to the encyclopedia of computer science,

“Information communication technology (ICT) is an imprecise term frequently fundamental to broad areas of technologies and associated with the use of computers and communications.

According to UNESCO “ICT is a scientific, technological and engineering discipline and management techniques used in handling information and application and social, economical and cultural matters”.



TOPIC Use of Information and Communication in Education



- Paperless : eliminate the usage of paper Eco friendly.
- Enhance data and information security.
- Minimize cost and save time.
- Enhance e-learning.
- Teachers can teach better with images, videos and graphic.
- Improving the retentive memory of students.
- Education can create engaging, interesting and well - designed classroom activities
- It helps in communicating with parents effectively.
- Computers can be used for online education and research. With the help of the internet students can find useful information about their projects.

TOPIC



- Students and teachers can increase his domain of knowledge with the help of e-journals, e-magazines, e-library etc.
- It enhances the quality and efficiency of education.
- ICT provides the flexibility and availability of learning materials to all students. While all resources are available in classrooms, students can also access them outside schools.

ICT

TOPIC

Importance of ICT



- e-learning or online learning:- The presence of ICT in education allows for new ways of learning for students and teachers.

- ICT brings inclusion:- The benefits of ICT in education is of such that students in the classroom can all learn from the curriculum material.

- ICT promotes higher-order thinking skills:

One of the key skills for the 21st century which includes evaluating, planning, monitoring and reflecting to name a few. The effective use of ICT in education demands skills such as explaining and justifying the use of ICT in producing solutions to problems.

- ICT use encourages collaboration: You just have to put a laptop, iPad or computer in the classroom to understand how this works. ICT naturally brings children together where they can talk and discuss what they are doing for their work.



TOPIC

- **Improved communication:** ICT can improve communication between teachers, students and parents. It allows teachers to communicate with their students through email, online discussion forums, and instant messaging.
- **Convenience** - with the use of ICT, learners can study at their own pace and at their own time, allowing them to balance their learning with other activities or work.
- **Increased access to educational resources :**

ICT enabled the learners to access a wide range of online educational resources through internet. These resources include online textbooks, e-books, videos and educational software that can be accessed from anywhere and at any time. Learners may not be able to access all these resources through traditional teaching methods.



TOPIC

Satellite Communication



Introduction

Satellites are specifically made for telecommunication purpose. They are used for mobile applications such as communication to ships, vehicles, planes hand-held terminals and for TV and radio broadcasting.

They are responsible for providing these services to an assigned region on the earth. The power and bandwidth of these satellites depend upon the preferred size of the footprint, complexity of the traffic control protocol schemes and the cost of ground stations.

A satellite works most efficiently when the transmissions are focused with a desired area.

When the area is focused, then the emissions don't go outside that designated area and thus minimizing the interference to the other systems. This leads more efficient spectrum usage.



TOPIC

Satellites antenna patterns play an important role and must be designed to best cover the designed geographical area.

Satellites should be designed by keeping in mind its usability for short and long term effects throughout its life time.

Applications of Satellites:

- Weather forecasting
- Radio and TV Broadcast
- Military Satellites
- Navigation Satellites
- Global Telephone
- Connecting Remote Area
- Global Mobile Communication

Tools of ICT



1. Desktop Computer:- Even as schools increasingly implement 1-to-1, bring your own device and other mobile device initiatives, many are choosing to retain at least some desktop computers because of its processing power and its larger screen size.
2. Laptop Computer: Since portability is a big feature of laptops, laptops were designed to be taken from place to place, carried in a black pack or laptop carrying use. They are great for on the go use. Screen sizes typically range from 10" to 17".
3. Tablet: Tablets are just simple mobile computers. It had touch screen in spite of mouse. Tablets use virtual hide-able keyboard which is generally used for typing. It lies between smartphone and laptop.





TOPIC

4. **Projector:** A projector is designed to receive a video signal from some external device usually a DVD player, a Blu-Ray player, or a computer and project that signal onto a screen. Rather than writing notes across a board, with the use of projectors, teachers can now use films, slides, video, animation and graphic to teach students.
5. **Radio:-** Radio technology offers a unique way for K-12 teachers to integrate technology into the curriculum. Elementary teachers can help students learn basic electricity and regional geography in entertaining.
6. **Television:** Television caters to the different learning styles of students, by offering a unique combination of sight, sound, motion and emotion, which can give students a greater understanding of the world around them. Teachers can benefit from keeping students interested through the means of educational and thought-provoking television in the classroom.





TOPIC

Introduction of Computers

The word "COMPUTER" originates from the word "compute" which means to calculate. Earlier computer was considered to be a calculating device which can perform arithmetic operations of enormous speed.

Process the data and make you available informations but also able to perform the subsequent steps on basis of processed information. This function makes the computer something more than a data processing device. i.e, it is an automatic electronic machine or device which accepts raw information as an input and reveals useful information as output or it processes according to a list of instructions and gives the output.



TOPIC

Characteristics of Computer

- (1) **Speed:** A computer is a very fast device. It can perform in few seconds. The amount of work that a human being can do in an entire year.
- (2) **Accuracy:** Computer is very accurate device. The accuracy of a computer is principle high.
- (3) **Automatic:** A machine is no sense, than done in to be automatic if it, works by itself without human intervention.
- (4) **Diligence:-** Computers has unlike human being. A computer is free from dullness and lack of concentration.
- (5) **NO T.O:-** A computer is not a magical device. It does not have intelligence of its own.



Types of Computers



Modern computers are electronic and digital. These are four types of digital computers according to their performance, size and cost.

- Micro computers
- Mini computers
- Mainframes
- Super computers

1. Micro computers: These are low cost small size computers. These have been named as micro computers on account of their employing microprocessor. They represent a typically single user systems meaning that a microcomputer can be used by only one user at a time. The personal computer (PC) that you are using in your computer lab are micro-computers.

2. Mini computers: - Mini computers perform better, are larger in size and cost more than micro computers. They also possess larger storage capacities and are faster in speed. Normally they are designed to support more than one user at a time.



TOPIC

united range of software can be used e.g
PDP-45, IBM [8000 series] etc.

3. Mainframe computers: They are big computers system. They have large storage capacity very costly and higher speed as compared to the mini computers. They are not user friendly. They can use for more mathematical calculations.

Eg → IBMS, ES00N VAK 8000 etc.

4. Super computers - They are large computers installed in space etc.

- They are used for perform computers mathematical calculation.
- Only scientists or mathematicians can operate this.
- They are used for whether forecasting, animation graphic etc.



TOPIC Computer Hardware and Software



Hardware meaning: Hardware refers to a physically tangible electronic component in a computing device.

The hardware within the device is responsible for storing and processing data while the external peripherals are needed for taking input and providing output. Some hardware types have distinct features.

Examples of hardware include monitor, keyboard, hard disk, CPU, printer and so on.

Software meaning: Software refers to the set of instructions in the form of programs, routines and procedures for operating a computing device and executing specific tasks on the system.

These instructions are written in high-level or assembly level programming languages that are translated by the interpreter or compiler into machine code for the processor of the computing device to understand.

Examples: web browsers, word processors, images and video editors etc.





TOPIC Computer Devices

Input Devices :- Input devices are those devices that are meant for feeding data instructions into the memory of computers in understandable form. Some input devices are given below:-

- **Keyboard**:- Keyboard is the most common, familiar and most important input device. It looks like a typewriter. It has got various keys which are used to give data and commands to computer.
- **Mouse**:- The mouse is most popular pointing device that is used to give the command and sometimes input to the computers. It is a small box with a round ball at the bottom and more than one button on the top.
- **Joystick**: Joystick is also a pointing device which is used to move cursor position on a monitor screen. The function of joystick is similar to that of a mouse.
- **Lightpen**:- Light pen is a pointing device which is similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen.





TOPIC

- **Track ball:** Track ball is an input device that is mostly used in network or laptop computer instead of a mouse. A track ball comes in various shapes like a ball or button and a square.
- **Scanner:-** Scanner is an input device which works like a photocopy machine. Scanner captures images from the source which are then converted into the digital form that can be stored on the disc.

Output Device

Output devices are used to get final results from the computer. Firstly, output is displayed on the monitor. Then we can print out these on a paper with the help of a printer. The purpose of the output device is to translate data and information from electrical impulses to a human-readable format.

- **Monitor :-** Monitor is a basic output device and it gives soft copy output. Monitor is also one of the important parts of a computer, because without a monitor, the system can't work. So that this is the standard output device. It is also known as a screen, display.





TOPIC

- **Printer**: It is also a basic output device used to print the output on the paper. The output on the paper is called hard copy output. Mainly there are 3 types printer available in the market:- Dot Matrix, Printer, Inkjet Monitor's laser monitors.
- **Projector**: A projector is a device designed to take an image from a video source and project it as faithfully as possible onto a screen or other surface.
- **Plotter**:- The plotter is a computer printer for printing vector graphics. A plotter gives a hard copy of the output. It draws a pictures on paper using a pen.
- **Speaker**:- Computer speakers are used to output sound of music files, video files, animation file etc. Mainly computers speaker is divided in the two types:
 - (a) Normal speaker
 - (b) woofers speaker



TOPIC WINDOWS 7



Windows 7 is the version of windows operating system by Microsoft. It is the successor to Microsoft window Vista. This operating system is specifically designed to meet the needs of both business and personal users. Window 7 was released to manufacturing on July 22, 2009 and general retail available on October 22, 2009.

FEATURES OF WINDOWS 7

- Working with files: windows 7 provide many ways to manage file stored on our computer we can open, rename, print, delete, move and search for files.
- Working with Images: windows 7 provides many ways to work with image. we can create our own pictures we can import images.
- Playing music :- windows 7 allow us to play music CDs, watch DVD movies and also helps us to find the latest music and movie on the internet.



TOPIC

- Access the Internet: window 7 allows our computer to connect to the internet and browse the world wide web we can search for web pages of internet. It also allow us to exchange electronic mail with people around the world.

Function of Window 7

- It co-ordinate interactions among hardware components such that receiving input from the keyboard and mouse, displaying output on the monitor and locating programs and files on the Hard work.
- It act as an interface between us and our computers so that we can work in a visual way by clicking item on the screen instead of typing receive sequence of commands.
- It interacts with programs installed on our computer



TOPIC

Microsoft Office 2007

Microsoft Office :- Microsoft office is suite for windows, developed and published by Microsoft. It is used to make professional-quality documents, letters, reports etc.

There are three main component in MS-office.

- (i) MS WORD
- (ii) MS powerpoint
- (iii) MS Excel

MS WORD

MS word is an application program that allows you to create and type letters, report, memes, proposals, new letters, brochures, graphic presentation, web pages, tables from letter virtually all commercials in today's business.



TOPIC

MS word for window is a what you see is what you get program which means that the users can see all fonts and graphics on the screen. exactly as they will print at word for window has ability to create graphics and graphs, which can be added to the documents.

Features of Microsoft Word

- using word you can create the document and edit them later, as and when required, by adding more text, modifying the existing text, deleting/moving some part of it.
- changing the size of the margins can reformat complete document or part of text.
- font size and type of fonts can also be changed. Page number and header and foot can be included.
- spelling can be checked and correction can be made automatically in the entire document. word count and other statistics can be generated.





TOPIC

- Text can be formatted in column or style as we see in the newspaper. Text boxes can be made.
- Table can be made and included in the text.
- word also provides the mail, message facility.

Microsoft ~ Power Point

Powerpoint is a typical tool can use to communicate your ideas through visual aids that professionally designed yet are age easy to produce. With power point you can create variety of media. Including black and white overheads, colour overheads, 3-5 mm sized and on screen electronic show in addition, you can prepare speaker's notes and print outlines and handouts for your audience. All these components integrated your audience into one file make up a powerpoint presentation.





TOPIC

Features of Microsoft PowerPoint

- Quick and easy, high impact visuals: Powerpoint auto content and pick a book wizards and templates not only help to designed a presentation last also gives a basic presentation outline to follow.
- fact-filled presentation with plenty of graphs and charts: - Powerpoint, graphs, organization chart and table modules can help to create elaborate visual that depict numeric information, detail the structure of an organization and make comparisons among ideas.
- Powerpoint is a popular presentation design program that provides a complete and easy way to create presentation to fit any need. using microsoft powerpoint, we can create visual appealing presentation quick and easily.





TOPIC

Presentation

Presentation is a form of communication where we get a chance to project our thought and ideas to a group of people.

Creating a new Presentation

- choose Blank presentation and click ok
- from many options choose an auto layout and click ok.

Creating a new slide

- select the slide after which a new slide has to be inserted.
- select insert menu → new slide or click the new slide button on the standard toolbar.
- In the choose an auto layout list, select a layout



TOPIC

Different Types of Views

Slide view: you must be working on slide view to edit was text, images or on the slide.

Out line view:

In outline you can quickly scan the entire presentation, edit text, but not the colour of the text, or do a spell check. You could also point the outline view to keep for separate notes as you present you show.

Slide Sorter View :- from this view you can move, copy and paste a slide and make duplicate slide.





TOPIC

Microsoft Excel

It is a software program. developed in form of an electronic spreadsheet.

Basic Terminology used in MS-Excel

- (a) Worksheet: It is a basic structure of MS Excel spreadsheet.
- (b) Work Book: Each MS-Excel file is known as work book.
- (c) cell:- The basic entity of worksheet that exist in the shape of Row and column.
- (d) cell pointer: It is lightey and Blank space of a cell that denote the cell machine





TOPIC

Features AND function of Ms-Excel

(A) Basic features:

- (i) Information presentation features
- (ii) Calculate features
- (iii) Data sorting feature
- (iv) Search and replace feature
- (v) Deleting and copying.

(B) Formatting features

- (i) Alignment of cell entries.
- (ii) changing styles appearances by having various types of fonts.

(C) Interesting features

- (i) Interesting features
- (ii) changing features

(D) web features: It enables us to connect information and document contained in an excel worksheet with internet resources.





TOPIC

Computer network

A computer network is a set of computers sharing resources located on or provided by network nodes. Computers use common communication protocols over digital interconnections to communicate with each other. These interconnections are made up of telecommunication network technologies based on physically wired, optical and wireless radio-frequency methods that may be arranged in a variety of network topologies.

The nodes of a computer network can include personal computers, servers, networking hardware, or other specialized or general-purpose hosts. They are identified by network addresses and may have hostnames. Hostnames serve as memorable labels for the nodes and are rarely changed after initial assignment. Network addresses serve for locating and identifying the nodes by communication protocols such as the Internet Protocol.





TOPIC

Computer networks may be classified by many criteria, including the transmission medium used to carry signals, bandwidth, communications protocols to organize network traffic, the network size, the topology traffic control, mechanisms and organizational intent.

Computer networks support many applications and services, such as access to the World Wide Web, Digital video and audio, shared use of application and storage servers, printers and fax machines, and use of email and instant messaging applications.





TOPIC

Internet

The internet, sometimes called simply "the Net," is a worldwide system of computer networks - a network of networks in which users at any one computer can, if they have permission, get information from any other computer. It was conceived by the Advanced Research Projects Agency (ARPA) of the U.S. government in 1969 and was first known as the ARPANET. The original aim was to create a network that would allow users of a research computer at one university to "talk to" research computers at other universities.

Today, the internet is a public, cooperative and self-sustaining facility accessible to hundreds of millions of people worldwide. It is used by many as the primary source of information consumption, and fueled the creation and growth of its own social ecosystem through social media and content sharing.

Furthermore, e-commerce, or online shopping, has become one of the largest uses of internet.





TOPIC

Uses of the Internet

- Access to endless information, knowledge and education.
- An increased ability to communicate, connect and share.
- The ability to work from home, collaborate and access a global workforce.
- The chance to sell and make money as a business or individual.
- Access to an unlimited supply of entertainment sources, such as movies, music, videos and games.
- The ability to save data and easily share files with cloud storage.
- The ability to monitor and control personal accounts instantly, such as bank accounts or credit card bills.





TOPIC

Multimedia

Multimedia is a form of communication that uses a combination of different content forms such as text, audio, images, animations, or video into a single interactive presentation, in contrast to traditional mass media, such as printed material or audio recordings, which features little to no interaction between users.

Popular examples of multimedia include video podcasts, audio slideshows and animated videos. Multimedia also contains the principles and application of effective interactive communication such as the building blocks of software, hardware and other technologies.

The five main building blocks of multimedia are text, image, audio, video and animation.

Multimedia can be recorded for playback on computers, laptops, smartphones, and other electronic devices. In the early years of multimedia, the term "rich media" was synonymous with





TOPIC

Interactive multimedia. Over time, hypermedia extensions brought multimedia to the world wide web and streaming services became more common.

Characteristics of Multimedia

- Multimedia presentations are presentations featuring multiple types of media. The different types of media can include text, graphics, audio, video and animations.
- Videos are a great visual example to use in multimedia presentations because they can create visual aids to the presenter's ideas.
- Another examples is charts and graphs, as the presenter can show their audience the trends using data associated with their researches.





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- Multimedia games and simulations may be used in a physical environment with special effects, with multiple users in an online network, or locally with an offline computer, game system or simulator.
- The various formats of technological or digital multimedia may be intended to enhance the user's experience, for example to make it easier and faster to convey information.
- Enhanced levels of interactivity are made possible by combining multiple forms of media content.





TOPIC

Shortcut keys

CTRL Shortcuts

Functions

| | |
|----------------|------------------|
| CTRL + A | Select All |
| CTRL + B | Bold |
| CTRL + C | Copy |
| CTRL + ALT + V | Past Special |
| CTRL + D | Fill Down |
| CTRL + F | Find |
| CTRL + G | Go to |
| CTRL + H | Replace |
| CTRL + I | Italic |
| CTRL + K | Insert Hyperlink |
| CTRL + N | New Workbook |
| CTRL + O | Open file |
| CTRL + P | Print |
| CTRL + R | Fill Right |
| CTRL + S | Save Workbook |
| CTRL + T | Create Table |
| CTRL + U | Underline |
| CTRL + V | Paste |
| CTRL + W | Close Window |
| CTRL + X | Cut |



TOPIC

| | |
|------------------|--------------------------------------|
| CTRL + Y | Repeat |
| CTRL + Z | undo |
| CTRL + 1 | format BOLD |
| CTRL + 5 | Strike - through |
| CTRL + 9 | Hide row |
| SHIFT + CTRL + 9 | unhide row |
| CTRL + 0 | hide column |
| SHIFT + CTRL + 0 | unhide column |
| CTRL + ~ | show formulas / values |
| CTRL + ^ | copy above formula |
| CTRL + [| Precedents |
| CTRL +] | Dependents |
| CTRL + ; | Display date |
| SHIFT + CTRL + : | Display time |
| CTRL + space | Select column |
| CTRL + enter | fill section / entry |
| ALT + F | file menu options in current program |
| ALT + E | edit options in current program |
| F1 | universal help |
| Shift + Deleted | cut selected item |
| CTRL + Insert | copy selected item |
| Shift + Insert | Paste |
| Home | Go to beginning of current line |

