EDU430

ICT in Education

Virtual University of Pakistan, Lahore

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Topic No. 1

Definition of ICT

ICT is concerned with the storage, retrieval, manipulation, transmission or reception of digital data.

Communication Technology

- Communication Technology implies the knowledge, skills and understanding needed to exchange information verbally or nonverbally.
- It is processing of information in terms of accessing information, decoding information and sending it via a medium.
- Communication Technology is the electronic systems used for communication between individuals or groups.

Topic No. 2

Information and Communication Technology

"ICT is defined, as a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information" (Mangal, 1997).

Characteristics of ICT

- ICT is the integration of Hardware and Software Technology.
- ICT fosters the dissemination of information and knowledge.
- The nature of ICT is digital and virtual.
- ICT is global, anywhere, any time.
- ICT is a key enabler in the creation of networks.

Topic No. 3

Computer Informatics

- Informatics' is the study of information processing
- Educational Informatics is the study of the application of digital technologies and techniques to the use and communication of information in learning and education.
- Educational Informatics is the development, use, and evaluation of digital systems that use pedagogical knowledge to engage in or facilitate resource discovery in order to support learning.
- Studying the techniques and impact of 'digital technologies' within the context of the 'use and communication of information' in educational settings.
- Educational informatics represents the intersection of three disciplines: teaching and learning, information science, and information communication technologies (ICTs).

Computer Network

- Inter connected collection of autonomous computers.

Topic No. 4

Computer Networking
- Copper wire
- Microwaves
- Fiber optics
- Communication satellites

Local Area Network and its Characteristics
- Local area networks are networks with in a single building or campus or up to a few kilometers in size.

Characteristics of LAN
- Low delay
- Very few errors
- Higher speed
- LANs are restricted in size (Functions within 10 KMs).
- Transmission time is bounded.
- Simple network management

Topic No. 5

Metropolitan Area Network (MAN)
- MAN is an extension of LANs.
- It normally covers the area of a city (are less than 100KMs.
- Uses a combination of different hardware and transmission media to cover distances efficiently.

Wide Area Network and its Characteristics
- It is defined as networking in a large geographical area, often a country or continent.

Characteristics of WAN
- WAN uses telephone lines or satellite links as a medium.
- LAN may be connected to WAN.
- It covers different cities or countries.
- WANs are not owned by anyone organization but are under collective ownership and management.
- Complex network design
- Error rate is large.
- Speed is less compared to LAN

Advantages of ICT in Education
- Quick access to information
- Easy availability of updated data
- Connecting Geographically dispersed regions
- Catering to the Individual differences
- Wider range of communication media
- Wider learning opportunities for pupils

Topic No. 6

Internet
Internet is a huge collection of computer networks that can be communicated with each other. This word is coined from the words 'interconnection' and 'network'. Through this, each computer user can communicate and share common resources with other users.

Web Server
It is a programme and a computer clubbed into one entity which responds to the requests from web browsers for internet resources. The primary function of a web server is to deliver web pages to clients' e.g. Apache HTTP Server, Microsoft Internet Information Services (IIS) and Sun Java System Web Server.

Topic No. 7

Web Browser

It is a programme that allows a user to display and interact with a 'hypertext' documents e.g. Internet Explorer, Net Scape Navigator, Mozilla Firefox, and Google Chrome.

Difference between Website and Web Page

Website

Website is defined as a collection of related pages on particular information.

Web Page

It is a file of information stored on a web server.

Topic No. 8

Homepage

Home page is the first hypertext document to be shown when a user follows a link to the web server.

Search Engines

Search engines can be defined as special tool to search for information on the net.

- AltaVista
- Yahoo
- Google
- Bing
- AOL

Topic No. 9

World Wide Web (WWW)

- WWW is a vast collection of documents stored on internet computers.
- It was invented by Tim Berner Lee.
- It provides easy access to information.
- It is a system of media rich documents spread across the internet, linked with each other.
- WWW documents contain texts, pictures, sound, video, etc.

Intranet and its Characteristics

- Intranet can be defined as collection of private computer networks within an organization. Internal or private network of an organization based on internet technology (such as hypertext and protocols) and accessed over the internet.
- An intranet is meant for the exclusive use of the organization and its associates (customers, employees, members, suppliers, etc.) and is protected from unauthorized access with security systems such as firewalls.
- An intranet should be closed off to the general public and require a login for authorized users.

Topic No. 10

Difference between Uploads and Downloads

- Both upload and download refer to the process of transferring a file.

Uploading

- Upload means to transfer a file or files from your own computer to another computer.
- Uploading is the process of copying files from your computer to a remote location. For example, you might transfer a file from your home PC to the Yahoo! Computer that stores your Web Hosting files.

Downloading

- Download means to transfer a file from another computer to your own computer.
- Downloading is the process of copying files to your computer from a remote location. For example, you might download a file from your Web Hosting account to your home PC.

Hosting

- For a website to be viewed by other people it must be stored on a computer (server) that is connected to the internet.
- A company that provides this service is known as a host; and the service it provides is hosting.

Uses of Computer Networks
- For sharing resources
- For high reliability
- For saving money
- For using as communication medium
- For accessing remote information
- For person to person communication
- For interactive entertainment

Topic No. 11

Web Resources
Web resources are defined as web pages and documents on the Internet that provide useful information.

Bookmarks
- Book marks can be defined as, a collection of direct links to predefined web pages which are stored in your web browser.
- Bookmarks can be created and managed by the user themselves. Most browsers come packaged with several existing bookmarks.

Topic No. 12

Hypertext
- Hypertext is generally the text displayed on a computer display or other electronic device.
- It may have links to other text which the reader can immediately access.
- The hypertext pages are interconnected by hyperlinks, typically activated by a mouse click, key press or by touching the screen.
- Hypertext is sometimes used to describe tables, images and other with hyperlinks.
- Hypertext is the underlying concept defining the structure of the World Wide Web with pages often written in the HTML.
- It enables an easy to use and flexible connection and sharing of information over the Internet.

Markup Language
- Markup language is a modern system for annotating a document in a way that is distinguishable from the text.
- The idea and terminology evolved from the "marking up" of paper manuscripts.
- A widely used markup language is Hyper Text Markup Language (HTML), one of the document formats of the World Wide Web.

Topic No. 13

Learning Aids
- Learning aids can be defined as any device/Aids which help self-learning/group learning.

Teaching Aids
- Teaching aids are the physical tools used to convey information in the classroom.
- Teaching Aids are any device which can be used to make the communication more effective.
- Teaching Aids are any device which can be used to make the learning experience more concrete, more realistic and more dynamic.
- 50 % of what we HEAR and SEE
- 70 % of what we SAY
- 90 % of what we SAY and DO

Topic No. 14

Psychology of Teaching Aids
Research done by COBUN (1968) indicates that generally we LEARN:
- 1 % through TASTE
- 1.5 % through TOUCH
- 3.5 % through SMELL
- 11 % through HEARING
- 83 % through SIGHT

Research done by COBUN (1968) indicates that generally we remember:
- 10 % of what we READ
- 20 % of what we HEAR
- 30 % of what we SEE

Advantages of Teaching Aids
- Help to learn more and remember for long.
- Motivate the learner.
- Give clarity to learning.
- Give reality and vividness to learning situations.
- Make abstract concrete
- Reduce verbalism.
- Provide variety in methods of teaching and learning.
- Make learning interesting meaningful and permanent.
- Develop deeper understanding.
- Arouse curiosity and self-activity.
- Saving of energy and time
- Spread of education on a mass scale.

Topic No. 15

Characteristics of Good Teaching Aids
- They should be meaningful and purposeful
- They should be accurate in every respect.
- They should be simple.
- They should be cheap.
- As far as possible, they should be improvised.
- They should be large enough to be properly seen by the students for whom they are meant.
- They should be up to date.
- They should be easily portable.
- They should be according to the mental level of the student.
- They should be motivating the learner.

Programmed Learning
- Programmed learning is a self-instructional and self-corrective technique in which all the learning material is presented to the learner stage by stage through sequentially arranged smaller units called frames. The frames are graded according to the level of difficulty as well as logical sequence.
- Programmed Learning is a carefully specified, systematically planned, empirically established, skillfully arranged and effectively controlled self-instructional technique for providing individualized instruction or learning experience to the learner.
- Programmed learning is available in the form of books, cards, machine, linear programming, branched programming etc.

Hyper Text Markup Language (HTM)
- Hyper Text Markup Language (HTML) is a standard language used for developing web pages'. Hyper Text Markup Language is a markup language that web browsers use to interpret and compose text, images and other material into visual web pages.

History of HTML
- In 1980, a markup language, i.e., Standard Generalized Markup Language or SGML was developed.
- HTML was evolved from SGML.
- Presently, HTML is advanced to DHTML and then to XML (Extensible Markup Language) and now to VRML (Virtual Reality Modeling Language).

HTML Coding
- HTML codes are known as 'HTML Tags'.
- An HTML document has two parts, Markup Language Tags and Web page content Text Information.

Points to Remember While Writing HTML Document
- Each tag is enclosed within a '<' (left bracket) and '>' (right bracket). This differentiates them from text.
- An opened tag must be closed

- Opening tag is denoted by $<\ >$
- Closing tag is denoted by $</\ >$
- Generally the HTML tags are written in upper case
- It is not a case sensitive language.
- Coding can be done in any text Editor (Windows notepad, Ubuntu –G-Edit).
- When we save HTML file, we should add .html or .HTM after the file name.

Topic No. 16

Teaching as a Noble Profession
- Teaching is regarded as the noblest of all professions in the world.
- A good teacher not only shows the right path that the students should follow but also prepares the human resource for the further development of the nation.
- Teaching has the power to create a healthy and peaceful world.
- It has the capacity to inspire lifelong learning and a passion for knowledge, understanding, and innovation.

Teaching
- "Teaching is an intimate contact between a more mature personality and less mature one which is designed to further the education of the latter."
- The aim of teaching is to transform a total man and his personality

Training
- In training the various kinds of skill are taught.
- Training has specific goals of improving one's capacity, and performance.
- The trainees are taught to perform skills which they attain during training and practice.
- There is mental and physical activity in training, but more and more of the activity is physical.

Instruction
- Instruction is at the higher level of training.
- Instructions tell people how to perform a process.
- In instruction there is better level of the use of intellectual powers of the trainee.
- The aim of teaching is to transform a total man and his personality, but the aim of instruction is to develop the intellectual powers in a given direction.

Topic No. 17

Computer Assisted Instruction (CAI)
- A self-learning technique, usually offline/online, involving interaction of the student with programmed instructional materials.
- "It is the use of computer to assist in the presentation of instructional material to a student to monitor learning process or to select additional instructional material in accordance with the needs of individual learners"
- CAI facilitates instant access to accurate information with infinite opportunity for practice. It also provides opportunity for systematically organized learning, to the maximum level possible, for all learners. It makes learning easy and interesting.
- Computer Assisted Instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material.
- CAI uses a combination of text, graphics, sound and video in enhancing the learning process.

Teaching Machines
- These were developed by S.L. Pressy.
- It's a piece of device designed to be operated by an individual student for self-learning.
- The student is presented with a question by some form of display on the machine.
- The student is required to respond either to write answer or put a button to indicate the correct response.
- The student will inform the correctness of the answer.
- An account is kept of the responses made by the student.

Topic No. 18

Information and Communication Technology (ICT)
This concept involves transfer and use of all kinds of information. ICT is the foundation of economy and a driving force of social changes in the 21st century. Distance is no longer an issue when it comes to accessing information. For example, working-from home, distance learning, e-banking, and e-government are now possible from any place with an Internet connection and a computing device.

Information Technology

IT (Information Technology) encompasses all of the technology that we use to collect, process, protect and store information. It refers to hardware, software (computer programs), and computer networks.

Topic No. 19

Hardware

The concept of hardware includes computer components, the physical and tangible parts of the computer, i.e., electrical, electronic and mechanical parts which comprise a computer.

Working Principle of a Computer

Computer working principle: data are entered into a computer via input devices, then are processed and stored in a system unit, and are finally displayed by the output device.

Topic No. 20

Personal Computer

Personal computer (PC), as the name suggests, is intended for personal use, as opposed to the server, which is used by a larger number of people simultaneously, from different locations, often via terminals. If you do not intend to move your computer frequently from one place to another, and at the same time you want maximal price/performance ratio, then you should use a desktop computer. In comparison to laptops or tablet computers, it is much larger in size, inconvenient to carry/move, consumes more electricity but has a much better price/performance ratio. Also, they are much easier to upgrade.

Desktop Computers and Laptop or Tablet PC

- Laptop or tablet PC is used by individuals who have the need to travel with a computer or simply use them for aesthetic reasons when computing power is not an issue. Laptop computers, as opposed to tablet PCs, more closely resemble a personal computer when it comes to data input. Data entry is done via keyboard and mouse, while the tablet PC data entry is done via touch screen.
- Unlike desktop computers, notebooks and tablet PCs are optimized for portability, low power requirements at the expense of performance and can be used (for a limited period of time-i.e. until the batteries are depleted) without connection to the power grid. In order to prepare a laptop or a tablet computer for use without a power connection, it is necessary to recharge the batteries.

Meaning of Teaching

- Teaching is to cause the child to learn and acquire the desired knowledge, skills and also desired ways of living in the society.
- Teaching is the stimulation, guidance, direction and encouragement of learning.
- Teaching is the communication between two or more persons, who influence each other by their ideas and learn something in the process of interaction.
- Teaching is to fill the minds of the learner by information and knowledge of facts for future use.
- Teaching is the process in which learner, teacher and other variables are organized in a systematic way to attain some predetermined goals.

Definitions of Teaching

- "Teaching is an intimate contact between a more mature personality and less mature one which is designed to further the education of the latter." H.C.Morrison (1934)
- "Teaching means many different things, that teaching act varies from person to person and from situation to situation." (Bar, 1961)
- The behavior or activities of persons as they go about doing whatever is required of teachers, particularly those activities which are concerned with the guidance or direction of learning of others." (Ryan, 1965)
- Teaching is the arrangement of contingencies of reinforcement under which students learn. They learn without teaching in their natural environment, but teachers arrange special contingencies which expedite learning and hastening the appearance of behavior which would otherwise be acquired slowly or making scene of the appearance of behavior which might otherwise never occur." (B.F. Skinner. 1968)
- "Teaching is an act of interpersonal influence aimed at changing the ways in which other persons can or will behave." (N.L. Gage, 1963)

Functions of Teaching
Preservative Function of Teaching

- The main function of TEACHING is to preserve and protect the old values, customs, beliefs, traditions, etc.
- Teaching must help in preserving the vital elements of our heritage.

Transmittive Function of Teaching
- Teaching transfers knowledge, ideologies, theories, principles and attributes from one generation to another. Thus, it contributes greatly to the general progress of society.

Progressive Function of Teaching
- Teaching provides opportunities to recognize and restructure human experiences and as a result of this, there is development of human civilization and culture.

Topic No. 21

PDA (Personal Digital Assistant) PALM
- PDA Personal Digital Assistant (PALM) is a convenient small sized computer. It easily connects to mobile phones and can prove a good solution for less demanding users. As the name suggests, it is a device that fits in the user's palm. Its name directly tells us that this computer is more of an assistant and not a workstation-whose name suggests the superiority in capabilities and computing power, especially in comparison with PDA.

Mobile Phones and Smart Phones
- Mobile phone is a portable electronic device used for distant communication. In recent years, mobile phone has evolved from simple communication device into a multifunctional device. Additional functions, such as short text messaging (SMS), electronic mail, Internet access, contact registration, calculator, clock, alarm, recording and photograph displaying, recording and playback of video clips, sending/receiving multimedia messages (MMS), audio recording and playback, etc. has turned the mobile phone into an extremely useful device, whose absence would make active involvement and participation in a modern society not possible.
- Smartphone is a device that merges functionality of phones, PDAs, cameras, camcorders and computers. To function properly, Smart phones use operating systems, which are the basis for application development. Some smart phones can be connected to an external screen and keypad, which creates a working environment, similar to that of a laptop or a desktop computer. Some operating systems for Smartphone are: Google Android, Symbian, Blackberry, Palm Pilot, and Windows Phone.

Topic No. 22

System Unit
The system unit (case) contains a computer's vital parts. There are two basic types of cases:
- Desktop casing is placed on a desk in a horizontal orientation.
- Towers come in 3 sizes (mini-tower, mid-tower and full-tower) and it is vertically orientated.

Mother Board and Protocol
- Motherboard, MBO is computer's basic circuit, to which all computer components are connected, directly or indirectly. Devices are connected to the motherboard through a system bus. System bus connects all devices, ensures data flow and communication between different devices using predefined protocols.
- Protocol describes a manner in which communication between devices is defined. It enables them to address each other and defines how they should look for each other on either system bus or network. Buses can, according to the purpose, be divided into:
  1. Serial USB, Firmware, etc.
  2. Parallel AGP, PCI, etc.
  3. Mixed-Hyper Transport, Infini Band, PCI, etc.

Topic No. 23

Cache
- Cache is a small capacity memory which allows quick access to data. By storing data from working memory in cache, the speed of communication between processor and RAM is increased. Microprocessors use three levels of fast cache, L1, L2 and L3, used to store often used data.

Central Processing Unit
- Central Processing Unit (CPU or processor) is a central part of a computer (and can be referred to as the computer's "brain"). It manages all other computer parts, monitors their mutual communication and performs arithmetic-logical operations. Processor speed is measured in hertz (or megahertz or gigahertz). Most famous manufacturers for personal computer processors are Intel and AMD.

Topic No. 24

Hard Disk Drive
- Hard Disk Drive (HDD) is a place for permanent data storage (it does not delete/clear when computer shuts down). Its features are: large capacity, faster performance in comparison to optical devices but slower in comparison to RAM and are used for permanent data storage. We can distinguish between internal and external hard drives.

Read Only Memory (ROM) and Random Access Memory (RAM)
- ROM (Read Only Memory) is a type of permanent, internal memory that is used solely for reading. All BIOS programs are stored in ROM.
- RAM (Random Access Memory) is a working memory in which analyzed data and programs are stored, while computer runs. It allows reading and writing data, and it is deleted/cleared when the computer shuts down.

Topic No. 25

BIOS
BIOS (Basic Input/output System), can be defined as a program which is located in a separate ROM on the motherboard, and defines, as the name suggests, basic input/output system, is a good example.

Floppy Disk Drive
Floppy Disk Drive is used for storing and reading data stored on a floppy disk. Disk capacity is 1.44MB. Before memory stick and a wider usage of CD recorders, it was used as data carrier. 'Modern memory sticks have a memory capacity measured in GB while floppy disks only have memory capacity of 1.44MB, indicating that floppy disks are becoming obsolete.

General Principles of Teaching Aids
Principle of Selection
- They should suit the age level, grade level and other characteristics of the learners.
- They should have educational value besides being interesting and motivating.
- They should be the true representation of the real things.
- They should help in the realization of desired learning objectives.

Principle of Preparation
- As far as possible, locally available materials should be used in the preparation of an aid.
- The teachers should receive some training in the preparation of aids.
- The teachers themselves should prepare some of the aids.
- Students may be associated in the preparation of aids.

Principle of Physical Control
- This principle relates to the arrangement of keeping aids safely and also to facilitate their lending to the teachers for use.

Principle of proper Presentation
- Teaches should carefully visualize the use of teaching aids before actual presentation.
- Adequate care should be taken to handle an aid in such a way as no damage is done to it.
- The aid should be displayed properly so that all the students are able to see it.
- As far as possible, distraction of all kind should be eliminated so that full attention may be paid to the aid.

Topic No. 26

Sound Card
Soundcard is a device used for sound creation and production by means of computer speakers.

CD-ROM and DVD Drive
- CD-ROM drive is used for reading CD media.
- DVD drive is used for reading DVD discs. DVD disc capacity ranges from 4.7 to 18GB.

Topic No. 27

Graphic Cards
Graphics card is responsible for image processing and displaying it on a monitor. It has its own graphics processor and memory. Image quality depends on the strength of these components.

Modem and Connectors
- Modem enables computers to communicate via telephone lines. They connect computers to the Internet.
- Connectors or ports are slots visible in the back and the front side of a computer.

Topic No. 28

Universal Serial Bus (USB)
Universal Serial Bus (USB) is used to connect various devices (mouse, keyboard, USB memory).

Serial Port and Parallel Port
- Serial port is used for example in connecting a mouse (labeled COM1 or COM2).
- Parallel port is used for connecting a local printer (LPT1 or LPT2).

Topic No. 29

Network Port and Firmware
- Network port is used for connecting computers to a network.
- Firmware is used for connecting computers and audio-video devices (digital cameras, etc.).

Measurement Units
Bit (binary digit) is the basic unit used to measure the amount of information. A byte or octet contains eight bits.
- 1 KB (kilobyte)- 1024 B (approx. 1000 B)
- 1 MB (megabyte)- 1024 KB (approx. 1000 KB)
- 1 GB (gigabyte) -- 1024 MB (approx. 1000 MB)
- 1 TB (terabyte) – 1024 GB (approx. 1000 GB)

Topic No. 30

Blu-ray Disc
Blu-ray disc (BD)- the successor to DVD, is an optical disk storage, it comes in different capacities, depending on how many layers it has and the capacity of each layer. Currently, the capacity of one layer is between 27 GB and 33 GB, while the overall capacity is the product of the number of layers and capacity of each layer.

Memory Card and USB Stick
Memory card is a type of flash memory used to store data in digital cameras, cell phones, MP3 players etc. USB Stick is a data storage device. It features small dimensions, relatively high capacity, reliability and speed. It belongs to the type of flash memory that remembers data, even when not under voltage i.e. they do not need electric power to maintain data integrity.

Limitations of ICT
ICT supposedly endangers the child's social development.
- ICT is supposedly to endanger the child's intellectual development.
- Decreasing of child's emotional development
- Child's health is endangered.
- Misuse of ICT A
- Complete control over the child's usage of ICT is today
- Practically impossible
- Expensive

Topic No. 31

Internal and External Hard Drive
- There is a difference between an internal hard disk drive, which is embedded in the computer case, and an external hard disk drive, which is connected to a computer by using an appropriate cable or USB port, and is usually used to transfer data from one computer to another or for backup.

Mouse
- Mouse is an input device that facilitates work with the graphical user interface (GUI). The mouse transmits hand movements and the screen displays the cursor (mouse pointer) movements. They are divided into mechanical and optical (with respect to a transfer movement), and wired and wireless (with respect to connection).

Topic No. 32

Track Ball and Keyboard

- Trackball, unlike a mouse, is not movable. Hand movements are transmitted to the screen by rolling the ball which is located on the upper side of the device.
- Keyboard is used for data entry and issuing commands. They can also be wired or wireless.

Scanner

- Scanner is used to load data (image, text, etc.) from the printed material into a computer. The result of scanning is an image, but with special programs, if we scan the text, we can get a text as a result. Software used to recognize text from image is called a text recognition tool.

Topic No. 33

Touch Pad and Light Pen

- Touchpad is used for transmission of hand movement, but unlike working with a mouse, the user is the one who determines the position of the cursor by touching the touchpad.
- Light pen enables handwriting on screen and can be used as a mouse. It requires an appropriate monitor type.

Joystick

Joystick: mainly used in computer games. Unlike a mouse, it has many buttons which allow control over game objects.

Topic No. 34

Microphone

Microphone is a device that converts sound into an electrical signal, which can be stored on a computer. It is mainly used for recording sound, communication between players in online games, in combination with a web camera in video conferencing, for converting voice into text on a computer (speech-to-text processing (e.g., textual files or emails), etc.

Structure of Monitor

Monitor displays images from the computer, it enables us to see, work and control computers. In other words, working on a computer without a monitor would be inconceivable. Common types of monitors, with regard to manufacturing technology, are the CRT and LCD. CRT monitors have been present on the market for a long time, and other technologies are pushing them out. They are based on cathode tube technology. LCD monitors use liquid crystal technology. In comparison with CRT monitors, LCD monitors use less electrical energy, do not emit radiation and their price is higher, however due to smaller dimensions, more attractive design and a good picture quality, they are pushing CRT monitors out of the market. Monitor size is expressed by the size of screen diagonal and measured in inches ("). Picture quality is expressed with the notion of resolution, which is a number of horizontal and vertical dots (pixels) (e.g. 1920x1080).

Topic No. 35

Printer

Printer is a device used for printing data from a computer onto a paper. We distinguish between local printer (connected directly to the computer) and network printer (connected directly to network using a network card). Also, printers also differ according to print technology: dot matrix, laser, inkjet, thermal printer and plotter.

Dot Printer and Laser Printer

Dot matrix printers are the oldest, with the lowest price of print per paper, they are slow, make a lot of noise while printing, and are mostly appropriate for printing text.
Laser printers are similar to photocopy devices when it comes to technology. They have exceptional print quality, speed and are quiet. Downsides of laser printers are their high price and high price of toners.

Merits of HTML

- HTML is simple but powerful formatting language to use.
- The simplicity allows anyone to create web pages.
- HTML documents are device independent (works on any platform)
- The web pages can be linked together using links
- The pages can be updated at any time.

Demerits of HTML
- HTML does not have any programming capabilities.
- Require expertise knowledge.
- Time consuming.
- Difficult to remember coding

Topic No. 36

Projector
Projector is a device used to project a computer image or other images from independent devices, such as DVD players, Blu-ray player, etc. onto canvas or a wall.

Inkjet Printers and Thermal Printer
- Inkjet printers have a high print quality (somewhat lower in comparison with laser printer), they are quiet while printing, and have low initial investment. Ink price, especially color ink, can cost as much as the printer itself. Printing technology is based on ink dispersion from container onto paper.
- Thermal printer, as its name states, leaves a print on the paper by utilizing heat. They use paper sensitive to heat, feature small dimensions; they are quiet while printing and relatively cheap. They are usually used for printing receipts, and owing to that they are called POS printer (printer of sale). Also, they are used as calculator printers and due to their small dimensions, as portable printers.

Topic No. 37

Plotter
Plotter is used for printing large drawings (up to A0). They are extremely expensive and used only for professional purposes, such as in designing firms for printing technical drawings (blueprints).

Storage Devices and Touch Screen
- Storage devices, due to necessity for writing and reading data, they are classified as input/output devices.
- Touch screen (i.e. monitor sensitive to touch) is out device while displaying computer image, and at the same time input device while receiving manual orders.

Topic No. 38

Software
Software is, unlike hardware, intangible part of the computer. It consists of a sequence of commands, written according to strict rules. Programs are written by programmers, in various programming languages.

Operating System
Operating system is a program which manages computer hardware. First computers did not have operating systems; they had programs that were directly loaded into the computer (e.g. punch cards). Today, computers have an operating system which loads into the computer's memory during its startup. Computer functions are based on its operating system. Within operating system, drivers (responsible for the functioning of a computer) and various utility programs (responsible for the functionality of a computer) are installed. The most famous operating systems are:
- Linux (Debian, Ubuntu, Fedora, Knoppix) open source software
- Microsoft Windows (XP, Vista, 7) proprietary software
- Mac OS X (Cheetah, Panther, Snow Leopard) proprietary software

Topic No. 39

Application Software
Application Software (Utility programs) are all programs that users use to perform different tasks or for problem solving. Users, according to his/her needs, install the appropriate utility software. Computer functions and tasks that computers can perform are defined by the installed utility software. Utility software can often cost more than computer hardware unless the software is open source.

Text Processing Software and Spread Sheet Calculation Software
- Text processing software is used for creating and forming text documents and nowadays, they can contain images, charts and tables. Examples of such programs are OpenOffice.org Writer (open source software) and Microsoft Word (proprietary software).
- Spreadsheet calculations software is used for performing various calculations and presentation of results in charts. Examples of such programs are Open Office, Writer (open source software) and Microsoft Excel (proprietary software).

Topic No. 40

Software for Presentation
- Software for presentations is used to create professional presentations that consist of slides with graphical and textual elements. Such a presentation can afterwards be displayed as a "slide show" by using a projector. Examples of such programs are OpenOffice.org Impress (open source software) and Microsoft PowerPoint (proprietary software).

Magnifier and On Screen Keyboard
- Magnifier is used to enhance a part of the screen.
- In on Screen Keyboard text is entered using a mouse to click on the on-screen keyboard.

Importance of Audio Visual Aids
- They are best motivators
- Reduce verbalism
- Gives clear images
- Vicarious experience
- Provide variety in methods of teaching and learning
- Freedom to child
- Opportunities to handle and manipulate
- Contributes to increased retentively
- Based on maxims of teaching
- Helpful in attracting attention
- Helpful in fixing up new learning
- Saving energy and time
- Gives reality and vividness to learning situations
- Meeting individual differences
- Encouragement to healthy classroom interaction
- Spread of education on a mass scale

Topic No. 41

Narrator

Narrator is commonly used by users with visual impairment - it can read text displayed on monitor, it tells current cursor position, and describes certain events, like warning and error messages generated by OS.

Function of Windows Speed Recognition

Windows Speech Recognition enables speech recognition, i.e. recognizes spoken word, transfers it to text and enters it into a document; therefore it enables you to dictate a text to a computer, to browse the web using your voice etc.

Topic No. 42

Computer Network

Computer network is comprised of at least two, connected, by wire or wireless, computers that can exchange data i.e. communicate. There are many reasons for connecting computers into a network, and some of them are:
- Exchange of data between users that have network access,
- Access to shared devices, such as network printers, network disks, etc.,
- Enables user communication and socializing, etc.

LAN (Local Area Network)

It is defined as a network that covers a relatively small geographical area- it connects computers within a firm or household by wire.

WLAN (Wireless Local Area Network)

It is defined as, a network that covers a relatively small geographical area – it connects computers within a firm or household wirelessly.

WAN (Wide Area Network)

It is defined as, a network that covers a relatively large geographical area – it connects a greater number of computers and local networks.

Topic No. 43

Client and Server

Relationship client - server is defined in the following manner: client sends requests and server responds to those requests. We can use Internet as the best known example. User's computer, connected to the Internet, sends requests to a certain web page (by entering page address into the Internet browser Address bar), and the server responds. Web page is loaded into the user's computer Internet browser as a result of server response. From this example, we can see that communication between client and server depends on connection speed (bandwidth).

Internet, Intranet and Extranet

- Internet (network of all networks) is a global system comprised of interconnected computers and computer networks, which communicate by means of using TCP/IP protocols. Although, in its beginnings, it emerged from the need for simple data exchange, today it affects all domains of society.
- Intranet is a private network of an organization to which only authorized employees have access (login and password).
- Extranet is part of Intranet, to which independent collaborators have access.

Topic No. 44

Different Way to Connect the Internet

- Dial-up Internet access method uses a modem (56k) and a telephone line.
- Broadband is characterized by a high speed data transfer, permanent access to the Internet, and thus the risk of unauthorized access to the network or your personal computer.

Different Connection Methods of Internet
Mobile

Internet is connected using a mobile network (GPRS, EDGE, UMTS, HSPA).

Satellite

These are commonly used in parts of the world where there is no proper infrastructure and there is no other way of accessing the Internet.

Wireless (Wi-Fi)

Data is transferred between computers by using radio frequencies (2. 4 GHz) and the corresponding antennas.

Cable Internet

It is used in connecting to the Internet through television cable network using a cable modem.

Broadband

It is characterized by a high-speed data transfer, permanent access to the Internet, and thus the risk of unauthorized access to the network or your personal computer. In the beginning of broadband Internet access, due to underdeveloped communication infrastructure, Internet providers charged based on the data traffic but not time spent on the Internet (unlike dial-up Internet access). Today, in large cities, telecommunications infrastructure is developed, therefore Internet providers do not charge money based on the time spent on the Internet or the amount of transferred data but they do charge by access speed.

Topic No. 45

E-Commerce and E-Banking

- E-commerce is a form of trade that allows customers to browse and purchase products online.
- E-banking allows users to have control over their accounts (view balances and transactions), transactions from one account to another, credit payment, shopping vouchers for mobile phones etc. The benefits are saving time (which would otherwise be spent waiting in lines), lower service fees, and access from anywhere, anytime.

E-Government

- In E-Government, information technology is used to provide better public access to government information, therefore providing citizens with their human right to information.

Different Classification of Projected Aids Projected Aids

- A projected aid is one which items to be observed is projected on a screen using electronic or Mechanical device.
- Very effective because movements can be added to sound and hence a realistic experience can be provided.

Magic Lantern
- It is used for projecting pictures from a transparency on a wall or screen.
- When the figure or illustration is very small and it is required to be shown to the entire class, A transparent slide of the small figure is prepared.
- Then, this slide is placed into the slide carrier part of the magic lantern.
- This magic lantern device projects it on the screen by enlarging its dimension and making the vision more clear and sharp.

Film & Film Projector
- Films are in the form of motion pictures.
- Films enrich learning by presenting a series of meaningful experience involving motion.
- Can enlarge or reduce the actual size of the object to suit the need.
- Film strips & Film strip Projector.
- A film strip is piece of noninflammable safely film, 35 mm wide.
- Length may vary according to requirement and can be up to about one meter.
- One film strip may contain 10 to 50 pictures frames.
- The pictures in film strip may constitute a connected series of drawings, photographs, diagrams or combination of these and illustrated a single sequence.
- The pictures may in color or in black or white.
- Some films strips are accompanied by commentary recorded separately, such film strips is called sound film strip.

Slides & Slide Projector
- The pictures or diagrams which are drawn in suitable medium is called slide. (Glass or Transparency)
- Slide can be enlarged by projecting it on a screen with a slide projector.
- Slide projector is an instrument equipped with a powerful light source and a carrier for holding slides of suitable size.
- Some slide projectors uses drums in which many slides can be loaded in proper sequence in advance.
- It is also possible to record the narration in a tape recorder that could be hooked up to the projector in such a way as to give the necessary commentary without the help of the teacher.

Episcope & Epidiascope
- Episcope is used for the projection of opaque objects.
- Pictures, photographs, drawings or an opaque material within the size of the platform of the episcope can be projected using Episcope.
- Episcope used to enlarge book diagrams and illustrate complex pictures. During Epi-projection the class room should be totally darkened in order to get a clear and bright image.
- Epidiascope can project opaque as well as transparent objects.

OHP
- This is called Over Head Projector because it projects the image behind and over the head of the teacher.
- The transparent visual is placed on a horizontal platform at the top of the light source.
- The teacher can place the transparent plate on the platform and write or draw on it anything that is to be visualized using suitable pen.

Television
- TV is very exciting and efficient means of mass communication.
- Educational Television programme aims at education rather than entertainment.
- One teacher or specialist can render teaching session and pass information to millions of viewers all over the world.

LCD Projector
- LCD (Liquid Cristal Display) is the most advanced and sophisticated projected aid.
- In the area of educational technology, we can replace all other projected and non-projected aids with only a single LCD projector and computer system.
- It can present a topic by using computer made slide, graphs, pictures, video clips, movies and special effect.

DLP Projector (Digital Light processing Projector)
- Most advanced and sophisticated projected aid.
- Brighter image
- Lightest and smallest

Topic No. 46

E-Learning

E-learning consists of all forms of learning and/or knowledge transfer that are based on electronic technologies. This term will mostly be used to describe learning and/or dissemination of knowledge without direct teacher-student contact, while using ICT technology.

Advantages of E-Learning

Advantages of e-learning greatly coincide with learning from books, with a difference that the books come only in text and graphic form on paper, while e-learning materials have multimedia features, and the ability to remotely monitor lectures in real time. To illustrate, physicians can observe medical procedures that are currently taking place in another hospital; students can attend classes that are currently taking place at another university. Some of the advantages for students:

- Adaptive time, place and pace of learning
- Access and availability of education
- Unlimited repetition of lectures
- Reduced cost of education
- Multimedia environment (video, audio, text)

Topic No. 47

Benefits of E-Learning for Teachers and Institutions

Some of the benefits for teachers and educational institutions:

- Reduced costs of conducting teaching (reduced travel costs and accommodation, reduced or eliminated costs for classrooms, etc.)
- Much larger education user base
- Once created, e-education allows educational staff to invest a much shorter time commitment to implement the respective education
- Simple and easy upgrade of materials, etc.

Advantages of Teleworking

- Reduced utility costs and employees transportation reimbursement
- Reduced time for traveling to and from work
- Adapting working conditions to personal habits flexibility
- Possibility of working in the convenience of a person's home (or other places that are not an office)
- Lower stress level, provided there is a good organization and coordination , i.e. the flow of information between employees is unconstrained
- An excellent solution for people with disabilities or long term illness, parents, or those who enjoy traveling

Topic No. 48

E-Mail

E-mail is the transmission of text messages via Internet. Using attachment, users can exchange files like images, multimedia, documents, etc. E-mail addresses consist of a username, @ sign ("at") and a domain name, e.g. mark.marich@ITdesk.info, where "mark.marich" is the username and "ITdesk.info" is the domain name.

Disadvantage of Teleworking

- Physical isolation and lack of direct social contact with colleagues
- Not suitable for everyone - requires a certain dose of self-control and motivation
- Less opportunity for advancement due to lack of traditional vertical hierarchy in the company, however horizontal hierarchy is created, where no one is above anyone, but everyone has their own duties and obligations

Topic No. 49

IM (Instant Messenger)

IM (Instant Messaging) service is used for instant message exchange and real time communication. Besides textual communication and video conferencing, they allow file transfer as well. Some of the popular IM services are: Windows Live Messenger, Skype, and Google Talk.

VoIP (Voice over Internet Protocol)

VoIP (Voice over Internet Protocol) is a term for technology that enables digitalization and transfer of sound (and multimedia sessions) over the Internet. Therefore, it enables sound communication much like the telephone call. In short, VoIP protocol enables audio/video communication between users.

Topic No. 50

RSS (Really Simple Syndication)

RSS (Really Simple Syndication) is a set of web formats, used by web pages that are being constantly updated, considering that by using RSS, new information, articles, etc. can be published. RSS enables us to, with use of appropriate software, read new titles and access news summaries. Users can, with appropriate software, obtain news from various portals and receive information without the need to visit all of them independently, while publishers can distribute news easily to end-users who are monitoring their RSS feeds/channel.

Blog (Web Log)

Blog (web log) is a form of Internet media in which users can re-post or write their opinion on any topic. It can be personal (a form of Internet diary), thematic, or in the form of journals. Blogs are popular because end-users do not need to have advanced computer knowledge, or knowledge of webpage creation, in order to be present on the Internet and write about various topics, i.e. state their opinion. Blogging has greatly facilitated the exchange of interests, ideas, opinions, and contributed to realization of human right to free expression. Some use blogs to share their art, personal aesthetic, or to collect virtual clippings from websites online.

Advantages of Projected Aids

- Teacher can prepare material in advance.
- Saves time in classroom.
- Provides greater enjoyment in learning
- Stimulates more effective learning
- Increases retention
- Increases attention
- Enlarges or reduces actual size of objects.
- Can provide multi-sensory/multimedia approach.
- Brings distant past and the present into the classroom.
- Can make class/presentation more effective.

Topic No. 51

Posts

Entries published on blogs are called posts, which may allow a space below for visitors to leave their comments. Besides text, it is possible to exchange multimedia files, such as photos or videos. In order to share your texts, pictures, video clips, etc., it is necessary to create a personal account on websites that offer this type of service. In case you simply wish to browse the content, it is not necessary to open a personal account.

Podcast

Podcast (POD - Personal on Demand+ Broadcast) is a digital file containing audio or video content. It is distributed over the Internet using RSS technology.

Topic No. 52

Virtual Community

The term "virtual community" encompasses a group of people who communicate via social networks, forums, IM service, blogs. We call it a community, since they are a collection of people who participate in a group of their interests, thus forming a virtual community, because it does not involve physical contact, but is carried out by means of ICT technologies.

Social Networks and Forum
Social Networks

These are free online services that provide users with various forms of presentation and communication. Some of the more popular social networks are: MySpace, Facebook, Twitter, and Google+.

Forum

It is defined as a service that allows users to exchange opinions. It can be compared to bulletin boards on which participants leave their messages, while others leave their comments. Examples of forums are: Reddit, TED Conversations.

Topic No. 53

MMO (Massive Multiplayer Online)

MMO (Massive Multiplayer Online) are network games, played by a large number of players via the Internet. One of the sub-genres of MMO is a MMORPG (Massive Multiplayer Online Role-Playing Game), and its most popular representative is a game called World of War craft.

Chat Room, Video Sharing and Photo Sharing Website

- Chat room is a webpage or part of a webpage which allows a real-time information exchange. Unlike the instant messaging writing software, it does not require computer installation, only a web browser and Internet connection.
- The most popular service for video clip sharing is YouTube.
- Picture or photograph exchange services are Photo bucket, Flickr, Instagram etc.

Topic No. 54

Computer Virus

Virus is a malicious program with the possibility of self-replication. In a computer it seeks other files, trying to infect them and the ultimate goal is to spread to other computers. Depending on what malicious code it contains, it may cause more or less damage to your computer.

Trojan Horses

Trojan horses can be presented in the form of games or files in e-mail attachments, with different purposes, such as: to allow remote control to your computer, delete data, allow spreading of viruses, send spam from the infected computer, etc. Unlike viruses and worms, it does not replicate and it needs to be executed, that is, it is not autonomous.

Worms

Worms like viruses, they possess the ability of self-replication, and however they cannot infect other programs. Their usual intent is to take control of your computer and allow remote control by opening, the so-called, and 'backdoor'.

Spyware and Adware

- Spyware is a program that secretly collects data about computer users (passwords, credit card numbers, etc.), therefore it spies on users. The most common spyware infections usually occur while visiting suspicious sites with illegal or pornographic content.
- Adware is a program that uses collected data about a user in order to display advertisements in a way regarded as intrusive. It usually manifests itself in the form of many pop-up windows that display ads.

Disadvantages of Projected Aids

- Expensive.
- Teacher must know to use.(Technical knowledge)
- Requires electricity and other infrastructure.
- Requires a darkroom.
- Requires smart room facilities.
- Chance for diverting from study.
- Require maintenance.
- Require techno friendly (ICT enabled) teaching materials.

Topic No. 55

Hoax

Hoax is a false message being spread by e-mail in order to deceive users. Their goal is to obtain data of, for instance, a bank account, or persuade users to pay some fees in order to win the lottery (which they never applied for), or pay costs of money transfers from an exotic prince to help him withdraw money from a country that is falling apart and, in return, will receive an impressive award, etc.

Process of Software Installation

Installations are available on CD/DVD, USB stick, network drive, the Internet (need to be downloaded), in electronic mail etc. i.e. through any electronic medium capable of storing and distributing digital data.

Topic No. 56

Propriety Software
Propriety software is software licensed under the exclusive legal right of the copyright holder. The licensee is given the right to use the software under certain conditions, but restricted from other uses, such as modification, further distribution etc.

Shareware and Freeware
- Shareware is a term that implies free software use (trials) for a specified time period, after which it is necessary to buy the product.
- Freeware is software free for personal use.

Topic No. 57

WAP (Wireless Application Protocol)
A system that enables you to browse online services, e.g. relating to information about the weather, traffic conditions, shopping, etc. via a special type of mobile phone. WAP is the mobile phone equivalent of the World Wide Web. Newer mobile phones include WAP browser software to allow users access to WAP sites.

Web 2.0
Web 2.0: Contrary to what many people think, Web 2.0 is not a new version of the World Wide Web. The term arose as the name of a series of conferences, the first of which was held in 2004: http://www.web2summit.com. Essentially, Web 2.0 is an attempt to redefine what the Web is all about and how it is used, for example new Web-Based communities using Blogs, Podcasts, Wikis and Social Networking websites that promote collaboration and sharing between users - in other words, a more democratic approach to the use of the Web. In order to achieve this, Web based applications have to work more like applications on your computer's hard disc, allowing you to use the Web in much the same way as you would use applications such as Word or PowerPoint. To what extent the concept of Web 2.0 is truly innovative is a matter of debate, as it is broadly in line with the concept of the Web as defined by its inventor.

Topic No. 58

Volatile Memory
It is used to describe the internal main Memory of a computer that loses its contents when power is switched off. RAM is volatile memory as the information is stored in memory chips as an electric charge.

Virtual Reality
The simulation of an environment by presentation of 3D moving images and associated sounds, giving the user the impression of being able to move around with the simulated environment. Users wear helmets and visors that convey the images and sound and gloves that give them the experience of touching objects. The film Lawnmower Man (1992) focused on a character experiencing virtual reality, albeit with negative consequences.

Virtual World
A type of online three-dimensional imaginary world or game in which participants and players adopt amazing characters or avatars and explore the world, engaging in chat or playing complex games. See Avatar, MMORPG, MUVE. See also Section 14.2, Module 1.5 under the heading Chat rooms, MUDs, MOOs and MUVEs. Not to be confused with Virtual Reality, this is a completely different concept.

Topic No. 59

Virtual Learning Environment (VLE)
A VLE is a Web-based package designed to help teachers create online courses, together with facilities for teacher-learner communication and peer-to-peer communication. VLEs can be used to deliver learning materials within an institution or within a local education authority. They may even address a wider constituency, and can even be used on a worldwide basis. VLEs have certain advantages in terms of ease of delivery and management of learning materials. They may, however, be restrictive in that the underlying pedagogy attempts to address a very wide range of subjects, and thus does not necessarily fit in with established practice in language learning and teaching. For this reason some critics argue in favor of a less restrictive Personal Learning Environment (PLE). The two most widely used VLEs in language teaching and learning are Blackboard and Moodle. VLEs may also be referred to as Course Management System (CMS), Learning Management System (LMS), Learning Platform and Learning Support System (LSS).

Video Disc

A technically obsolete Storage Medium, an Optical Disc, 12 inches in diameter, used mainly to store still images or video clips. Now, these are replaced by CD-ROMs and DVDs.

Videodisc Player

Equipment used for accessing information - usually still images or video clips – stored on videodiscs. Now technically obsolete.

Video Memory

The dynamic memory available for the computer's Display Screen. The greater the amount of memory, the greater the possible color depth and resolution of the display.

Topic No. 60

Video Conferencing

Videoconferencing or Video Conferencing: A computer-based communications system that allows a group of computer users at different locations to conduct a "virtual conference" in which the participants can see and hear one another as if they were in the same room participating in a real conference.

VGA

VGA is abbreviation for Video Graphics Adaptor. An older type of Video Card or circuit board used to control the output on a computer Display Screen. VGA cards were superseded by SVGA cards. See Section 1.1.1.4, Module 1.2, under the heading Graphics card.

Video Card

It is an electronic circuit board inside a computer, which controls the display on the Monitor, i.e. the computer screen. Video cards are usually add-on cards inserted into expansion slots, although sometimes video circuitry is incorporated into the Motherboard. It is usually referred to as a graphics card these days.

Non-Projected Aids
Graphic Aids

- Graphic Aids are visual aids such as graphs, diagrams, charts etc.
- They can be conveying the message by a combination of written and pictorial visuals that could be made meaningful by suitable captions.
- The criteria for good graphics are that they should be simple, legible and brief.
- Graphs normally used to represent the nature of the relation of two dependent variables. Different types of graphs are Line graph 2. Bar graph 3 Pie graph

Diagrams

- Used to explain many factors at the same time, by using a variety of symbol and labels
- Diagrams can explain facts more vividly than charts

Posters

- Posters are bold and attractive representation of an idea or concept and usually given in color.
- Poster catches the eye and conveys the desired message.

Maps

- A map is an accurate representation of the boundaries and other details of continents, countries etc. on a plane, in the form of a diagram drawn to scale.
- A variety of geographical details like location of mountains and rivers, altitude of places, important cities and other places etc. can be represented accurately with reference to a convenient scale and following suitable color scheme.

Cartoons

- A cartoon is a metaphorical, humorous and exaggerated caricature of a person or situation in the form of a picture or sketch.

Comics

- A comic strip is a form of cartoon depicting a story in sequence.
- The events are arranged in the proper order in a attractive pictorial form that is normally appealing to lower age groups.

Flash cards

- Flash cards are an aid used in language lesson, especially in the lower class.

- The card containing the reading material is exhibited for a few seconds only. Then it is removed and the feedback attempted.

Pictures and Photographs
- Pictures and photographs play a significant role in making ideas clear and comprehensive.

Topic No. 61

Access
This is the name of a Database program forming part of the Microsoft Office suite of programs.

Adware
Adware is software that may have been installed on your computer by a remote computer, i.e. via the Web. Many free utilities that you download from the Internet will install hidden software that sends details of the websites you visit and other information from your computer (which can include your email address) to advertisers so they can target you with popup ads and spam.

Topic No. 62

Meaning of Assistive Technology
This term describes computer software or devices used by people with special needs to enable them to access the services provided by ICT, e.g. computer programs, Email and the World Wide Web. Technologies under this heading include Text To Speech (TTS) screen readers for the unsighted or partially sighted, alternative keyboards and mice for people who have problems in hand-eye coordination, head-pointing devices, speech
recognition software, and screen magnification software.

Attachment
A term used in connection with Email. An attachment can be a File of almost any kind - a document file, an image file, a sound file or a video clip - that you can add, i.e. attach, to an email.

Topic No. 63

Avatar
Avatar is defined as, a graphical representation of a real person, such as used in a MUVE or MMORPG, a kind of "virtual world". Participants in a MUVE or MMORPG choose a name and a visual representation of the character that they wish to adopt as an inhabitant of the MUVE or player in the MMORPG.

Back Up
Backup or Back Up: Used as a verb, to back up means to copy a File or Folder from your computer to another Storage Device, e.g. a CD-ROM, as a precaution in case your Hard Drive fails or is infected by a Virus. A backup, used as a noun or a backup copy describes a copy that you have made in this way. It is essential to back up new files and folders at regular intervals.

Topic No. 64

Bluetooth
Bluetooth is a technical industry standard for radio technology which facilitates the transmission of signals over short distances (up to around 10 meters) between telephones, computers and other devices without the use of wires. For example, a Bluetooth-enabled mobile phone can communicate with a Desktop Computer or Laptop Computer for the purpose of synchronizing data, such as an appointments diary.

Browser
Browser is a software package installed on the hard disc of your computer that enables you to access and to navigate the World Wide Web to "surf the Web" in colloquial terms.

Topic No. 65

Bytes
It can be defined as, a measurement of computer memory or disc capacity. A byte comprises 8 bits.

Cache

The cache contains information stored by a Web Browser on your hard disc, so that you don't have to download the same material repeatedly from a remote computer. Browsers keep copies of all the Web pages that you view so that the pages can be redisplayed quickly when you go back to them. The cache is normally stored under Windows in a folder called Temporary Internet Files. This folder can become enormous over time and can cause your hard disc to become overloaded and then your computer may lock up. The cache needs to be emptied at regular intervals which you can do manually or using utility software such as Window Washer. You can set the maximum size of the Temporary Internet Files folder, using the Tools menu in your browser.

Different Types of Maps that are used in Classroom

- Geographical Maps
- Historical Maps
- Industrial Maps
- Political Maps

Topic No. 66

Camcorder

It is defined as, a portable video camera, capable of recording live motion video for later replay through a videocassette recorder (VCR), DVD player or computer. Videos produced by a camcorder can be uploaded to a computer via a USB cable or firmware, edited using special software such as Windows Movie Maker, and played on a computer using Media Player software.

Card

In computer jargon, a card is an electronic circuit board, usually one which can be slotted into your computer in order to fulfill a specialized function.

Topic No. 67

Client

Client is referred to as a computer that receives services from another computer. A standalone computer on your desk which you use to browse the Web is a client, and the computers from which World Wide Web files are downloaded to your computer are servers. Similarly, a computer (also known as a workstation) connected to a Local Area Network (LAN) is a client that can receive information from and send information to the server that controls the LAN.

Clipboard

Clipboard is a temporary storage area in a computer's memory. It may be used, for example, to store text that you are in the process of copying and pasting from one section of a word processed document to another section in the same document or to another document. You should find a clipboard viewer program on your computer, which enables you to see what is currently being temporarily stored in the clipboard.

Topic No. 68

Content Management System

It is an abbreviation for Content Management System (CMS), a software package that makes it possible for non-technical users to publish content (text, images, etc.) on a website. It is also called Course Management System, which is a type of Virtual Learning Environment (VLE).

Difference between Content Management System and Learning Management System

Both these applications have important place in an organization. The differences between content management systems as compared to learning management system are significant in their core functionality. For students or learners, a CMS is more of a passive application where they can simply view documents. With an LMS, learners have the ability to view, listen, and interact with the data. They have the options to try examples, complete assessments, and give evaluation or feedback on courses.

Topic No. 69

Compatibility

Compatibility is referred to pieces of hardware and/or software which is capable of being used together is described as compatible.

Computer Aided Assessment

Computer Aided Assessment (CAA) covers a range of assessment procedures and is a rapidly developing area as new technologies are harnessed. In essence, CAA refers to any instance in which some aspect of computer technology is deployed as part of the assessment process.

Topic No. 70

Compression

Compression is a technique which reduces the amount of space required to store data, e.g. as used to reduce the amount of space needed to store an image, an audio recording, or a video recording.

Computer Program

Computer Program is a set of instructions that the computer carries out in sequence to perform a given task. Programs are written in English-like programming languages (e.g. C, Pascal), and are then converted into binary machine instructions via a compiler or an interpreter.

Different types of Charts and their Usage in Classroom
Charts

- A chart may be defined as a combination of graphics and pictorial media designed for the orderly and logical visualizing of relationship between key fact and ideas

Different types of charts are

- Display chart
- Flow chart
- Tabular chart
- Tree chart
- Time chart
- Flip chart

Display/Pictorial Chart

- The subject matter is illustrated through pictures, diagrams, graphs, sketches and language.
- This is the most commonly used type of chart in classroom teaching

Flow/Process Chart

- Flow charts are also known as organizational charts.
- They usually represent a process or relationship.
- Functional relationships in such charts are usually shown through various symbols and forms like rectangles, circles, lines, arrows and colors.

Tabular Chart

- In table charts the data is presented in a tabular form.
- It can provide a quick comparison and contrast among various ideas and events.

Tree Chart

- The figures drawn in these charts resemble a tree.
- Generally used in showing development, growth

Time Chart

- Time charts are used to indicate the time sequence of a series of events.
- Arrange all the happenings important to the development of a process, organization or nation in a chronological order.

Flip Chart

- It consists of a pad of large paper sheets fixed to the upper edge of a board.
- Usually supported on a tripod or four legged stand.
- Commonly used for presentations.

Topic No. 71

Computer Based Training

Computer Based Training (CBT) is a term used mainly in the business world. It implies a top down, trainer centered approach to teaching with computers and is closely associated with Programmed Learning.

Computer Conferencing

Computer conferencing is a development of Email designed to support many to many communication, whereby computer users in different locations can take part in a "virtual conference". A conference usually consists of a group of participants who have a common interest in the conference subject matter. Computer conferencing software enables the organization, storage, structuring and retrieval of messages. Messages may be organized under different topics, by author or by date of posting. Asynchronous conferencing may take place via a Blog, Discussion List, Forum or Wiki, blogs, social networking. Computer conferencing takes place in "real time", e.g. within a Chat Room.

Topic No. 72

Crash

Crash is a term describing what happens to hardware or software when it suddenly fails to work properly. The commonest symptom of a crash is the "frozen screen", i.e. when the keyboard and/or mouse goes dead with the result that nothing can be typed and the Cursor cannot be moved around the screen. Modern computers typically crash several times a day. Most crashes are not serious and are simply the result of faulty programming - i.e. most programming. Some kinds of crashes can be symptomatic of more serious problems, however, and should be investigated if they keep occurring. Operating systems themselves, e.g. Microsoft Windows, are particularly prone to crashes.

Data Projector

Data Projector is a device that enables the image displayed on a computer screen to be projected onto a wall screen or Interactive Whiteboard.

Topic No. 73

Data

Data is the plural of "datum", but now usually considered as a collective noun in the singular, with the plural form "data items" or "items of data". Data is information in a form which can be processed by a computer. It is usually distinguished from a computer program, which is a set of instructions that a computer carries out. Data can be text or sets of figures on which a computer program operates.

Database

Database is a structured collection of data that can be used for a variety of purposes. Databases are usually stored on a Hard Disc inside your computer, on a CD-ROM, or at a website. A database may contain data relating to staff employed by a company or to students at an educational institution. Databases can also contain bibliographies, glossaries, vocab lists, etc. In order to set up and manage a database you need a database program such as Microsoft Access.

Topic No. 74

Default

Default is a setting or value automatically assigned to a computer program or device in the absence of a choice made by the user. When you use a program for the first time, e.g. a Browser or Word-processor, all the settings will have been preset to their default values - many of which can be changed to settings that you prefer, e.g. the default font type and size. The term default route is used in connection with Computer Assisted Language Learning, meaning the route that the teacher believes to be optimal for the learner to follow in a computer program or suite of programs but which can be overridden by the learner if he/she wishes to follow his/her own route.

Desktop

Desktop is the main workspace in Windows is often referred to as a desktop, which is displayed on the screen that you see when Windows is started. This electronic desktop is a metaphor for the top of a real desktop, where jobs to be done are lay out in different folders symbolized by Icons, i.e. small images. Users open and work with programs by clicking on the icons on the desktop, and they can also store shortcuts to documents or websites there.

Topic No. 75

Computer Desktop Computer

A desktop computer is one that is designed to sit permanently on a desk, as opposed to a portable computer, e.g. Laptop Computer, Netbook, Notebook Computer and Tablet Computer, all of which can easily be carried around.

Device Driver

Device Driver is software that enables a computer to communicate with a hardware device such as a Mouse, Printer or Scanner. Hardware devices must each have the proper device driver installed in order to enable them to run. Most hardware devices are supplied with small programs that are installed onto your hard drive when you use them for the first time and tell the computer how to communicate with that specific device.

Different Types of Boards and Their Usage in Classroom
Display Boards

- Display categorized into tree main types according to the function to the functions they perform
- Motivational Display: Display that attracts and appeal pupils and stimulates their curiosity is called motivational displays.
- Developmental Displays: Displays that ass information and ensure active involvement of pupils in the development of lesson is called developmental displays.
- Summery Display: Displays that are used for review and consolidation of a lesson are called summary display.

Black Board

- Most basic, widely used tool for display
- Teaching cannot be successful without proper use of a Black Board.
- Black Board planning is a precious skill to be developed by a teacher.

Roll Up Board

- It is that which can be conveniently rolled up.
- These are usually made of thick rexin cloth.
- The charts and pictures can be drawn on it advance and presents as and when required.

Peg Board

- To display flat and three dimensional materials
- Use hooks and clips to display materials.

Hook and Loop Board

- Intended to suspend heavy 3D objects as well as flat materials.
- Objects can be easily fixed and removed.

Flannel Board

- Flannel cloth used to make this board.

Magnetic Board

- A sheet of iron that attracts a piece of magnet can be used for magnetic board.

Plasti Graph Board

- Any smooth polished surface like rigid plastic sheet and serves as plasti graph board.

Bulletin Board

- Used to display bulletin, News items, announcement etc.

Marker Board

- Large plastic board suitable for writing or drawing with markers.
- This can be used the same way as chalk boards.
- It can be sometimes used as a projection screen also.

Topic No. 76

Digital

The essential meaning of the term digital is "based on numbers". The modern computer is a typical example of digital technology, so are CD-ROMs, DVD-ROMs, audio CDs and video DVDs, on which numbers are coded as a string of tiny pits pressed into a plastic disc. When a CD audio recording or a DVD video recording is played back, using equipment incorporating a laser as a reading device, the exact numeric values are retrieved and converted into sound or images. Digital recording is relatively free from noise and interference and gives a very high quality of reproduction. Data (including audio and video) or programs stored on CD-ROM or DVD can be read by a computer in a similar way. There are two major benefits to digital technology. Firstly, digital technology - because it is based on numbers is more precise. Secondly, digital technology is becoming cheaper and more powerful. Digital

technology is now used in radio and TV broadcasts. Digital recordings made from any source (audio- or videocassettes, television, radio, Internet, satellite TV, microphone or Camcorder) can be edited easily, then stored on a computer's Hard Disc, CD-ROM, DVD, Flash Drive, Memory Stick, etc. They can be copied without quality loss and more significantly, can be used by more than one learner at the same time.

Directory

Directory is a location on a disc containing a group of files and subdirectories grouped together for organizational purposes. The term is used synonymously with Folder, which has become a more common term since the introduction of Windows. Subdirectories are sometimes referred to as "child directories" of the "parent directory". The topmost directory on a computer, which is the parent of all directories on the disc, is known as the root directory and usually has the path name C:\ .

Topic No. 77

Disc

Disc is often spelt "disk", the alternative (mainly American) spelling. A disc may take several different forms and is used for the permanent or temporary storage of data that can be read by a computer.

Display Screen

Display Screen is the screen on which output from a computer is displayed. It is also referred to as a Monitor. Older computers used a Cathode Ray Tube, which is essentially the same as that used in older domestic TV sets. Newer types of display screens are of the LCD or TFT flat panel type like many modern TV sets. They are much lighter, use less electricity and take up less room on your desk.

Topic No. 78

Disruptive Technology or Disruptive Innovation

A disruptive technology is a technological innovation, product or service that eventually overturns the existing dominant technology in the market even though it may initially perform worse than its predecessors and cause a great deal of inconvenience in the course of adopting it.

Distance Learning

Distance Learning is a form of learning that takes place where the teachers and the students are in physically separate locations. Distance learning can be either Asynchronous or Synchronous. Traditional distance learning includes the mailing of printed materials, correspondence between teachers and students in writing, contact by telephone, and radio and television broadcasts. More recently, distance learning has included E-learning and/or Online Learning. The British Open University (OU) is one of the oldest established distance learning establishments to have embraced existing technologies, i.e. radio and television, when it was set up in the 1960s. The OU continues to embrace new distance learning technologies as they become more widely available.

Topic No. 79

Download Accelerator

Download Accelerator is used in downloading large files from the Web. If you connect to the Internet using a slow Dial up Modem then you might as well make yourself a cup of coffee or take the dog for a walk while you are waiting. You may, however, find that the download process has been timed out or crashed before it has been completed. A download accelerator is therefore essential if you use a dial-up modem, and it can help manage and speed up the process of downloading if you have a Broadband connection to the Internet.

DPI

DPI is an abbreviation for Dots per Inch. It is a measure of the quality of output, i.e. the number of dots per square inch produced by a printer or scanner, also referred to as its resolution. A resolution of at least 300 dpi is considered reasonable for the production of high-quality output by a printer and 1200 dpi by a scanner, but modern printers and scanners can produce many more dots per square inch. The resolution of a scanner may also be expressed by two numbers. These are mostly the same, e.g. 1200 x 1200, but you may also see 1200 x 2400, which means that the number of horizontal dots is different from the number of vertical dots.

Topic No. 80

Encryption

Encryption is a system of coding that helps prevent access to private information on computer networks or on the Web.

Feedback

Feedback is an automatic response from a computer, which may take the form of text, image, audio, video or any combination of these, to a learner's input. Input from the learner may take various forms, e.g. (i) clicking with the mouse to select an answer in a multiple choice exercise, (ii) typing an answer at the computer keyboard, or (iii) speaking an answer into a microphone. Feedback in interactive language learning materials should go beyond a "boing" (wrong) or "applause" (right) or "try again" message and attempt to mimic the "live" situation when using the language results in either a response from the other person or an action showing that the language used was appropriate. Feedback is often described as intrinsic (implicit) or extrinsic (explicit).

Use of Three Dimensional Aids in Classroom
Three Dimensional Aids
Models

- Models are concrete representations of objects.
- Size should be suitable
- There are two types of model
  a) Working model
  b) Static (still) model
  c) Working model is more effective than static model

Objects

- Objects may be defined as the real things from their natural settings. Eg. Rock, Coin, stamp etc.

Specimen

- A specimen may be defined as a typical objects or part of an object which has been removed for convenient observation.
- It may be a representative of a class or group of similar objects.

Mockups

- A mockup is an operating model usually of a process, designed to be worked with directly by the learner for specific training or analysis.
- When direct firsthand experience is either impractical or impossible, mockup can be used.
- Mockups is an imitation of the real process. Eg. Mock Parliament

Diorama

- A diorama is a three dimensional scene in depth, incorporating a group of modeled objects and figures in a natural settings.
- A diorama scene is set up on a small stage with a group of modeled objects that are kept on the foreground and blended into a painted realistic background.
- For representation of depth, object kept at the background are made considerably smaller to create illusion.

Puppets

- Different types of puppets are used to make the learning object more realistic.
- Most commonly used puppets are hand puppets, glove puppets, finger puppets, rode puppets, string puppets, and shadow puppets etc.

Globe

- A globe is a three dimensional scale model of Earth or other celestial body such as a planet.
- The term globe is used only for models of objects that are approximately spherical.

Topic No. 81

File

A file in computer jargon can be used to describe many different things. It may be a Computer Program, a document file created with a Word-processor, an image file, an audio file, a video file, etc. Think of it in the same way as you would think of a file in a filing cabinet. A file has a name that describes what it is, and the file is stored in a place where you can easily find it. Files are usually grouped together on a computer's Hard Disc in directories or folders and, as well as their names, they usually have a three-letter Extension that tell you what their function is or what they contain, e.g. fwtt.exe is a program, mystory.doc is a Word document, sally.jpg is a picture, and mydog.mpg is a video file. Files may also be stored on CD-ROMs, DVDs and Flash Drives.

Flash Drive

Flash drive is a portable storage device. Flash drives look like a small flat pen, around 3cm to 5cm long, and are easily carried in your pocket. Their storage capacity is impressive. They are used to store data

that you wish to carry around, e.g. a PowerPoint presentation, and they can be plugged into any computer with a USB socket. Flash drives are also commonly referred to as pen drives or memory sticks.

Topic No. 82

Firewall

A firewall is a software package that sits between your computer and your Internet connection, keeping an eye on the traffic going to and fro. If anything suspicious appears, such as an unauthorized attempt from a remote computer to write information to your hard disc or to send information from your computer to a remote computer, it will block it and warn you. Firewalls have become essential these days because of the frequent attempts being made by hackers to grab confidential information from computers all around the world, e.g. your bank or credit card details, which may be stored in a file somewhere on your computer. Any computer is vulnerable while it is connected to the Internet. The author of this paragraph writes from personal experience: two attempts have been made by hackers to grab passwords from his computer. Both attempts were fortunately spotted by his Internet Service Provider and blocked, so no damage was done. If you access the Internet via a computer in a public or commercial organization your ICT services department has almost certainly installed a firewall, but if you access the Internet using your personal computer then you should make sure that you install your own firewall. In addition you should install an antivirus package.

Fire Wire

A fire wire is in essence a facility that allows you to transfer video recordings very quickly from one device to another, e.g. from a Camcorder to a computer, using a special cable that connects to the computer's fire wire socket. Many modern computers already have a fire wire socket built in. If your computer does not have a fire wire socket then you have to buy a fire wire card and slot it in.

Topic No. 83

Formatting

Formatting is the process of preparing a writeable disc for use. Formatting creates a structure on the disc which enables it to hold data.

Fonts

The terms font (also spelt fount) and typeface are often confused or interchanged. Font refers to a complete collection of letters, numerals, symbols and punctuation marks that have common characteristics, including their style and size. The two commonest fonts are Times New Roman, a Serif font, which is characterized by cross-lines that finish off the stroke of each letter, and Arial, a Sans Serif font that has no cross-lines. Typeface is the name given to the style of a particular set of letters, numerals, symbols and punctuation marks.

Topic No. 84

Freeware

Freeware is software that can be copied and used without payment to the author(s), although there may be some restrictions on distribution.

Google

Google is a popular Search Engine. It is probably the most widely used search engine on the Web. You can also use Google to find definitions of words. Call up Google at http://www.google.co.uk/ and in the search box: type define: immediately in front of the word you would like to be defined. Google will then locate definitions of that word on the Web, e.g. try defining: bandwidth or define: ADSL. If your term consists of two or more elements, e.g. blended learning, encase it in inverted commas, thus: define: "blended learning". Blended Learning is also defined in this Glossary. "To Google" is even used as a verb in the sense "to carry out a search on the Web". As well as offering a search facility, Google offers much more: maps, news, shopping, translation services, document sharing, etc.

Topic No. 85

Gigahertz

Gigahertz is usually abbreviated to GHz. It is a unit of measurement relating to the Clock Speed of a computer or, put simply, a measurement of how fast its Central Processing Unit (CPU) runs. Typical clock speeds of modern computers can range from 500 Megahertz (500MHz) upwards.

Graphical User Interference

Graphical User Interface (GUI) is an interface, i.e. a software package that enables human beings to control what happens on their computers. A GUI consists of graphical elements known as icons and enables the user to run programs and to carry out other operations such as copying information from one Folder to another, deleting files, etc. by clicking on these icons, opening and shutting windows and dragging and dropping with a mouse. Microsoft Windows and the much older Apple Mac interface are GUIs. As compared with Contrasted with Character User Interface (CUI) which is older type of interface that required the user to control the computer by typing commands at the Keyboard.

Different Types of Audio Aids used in the Classroom.
Audio Aids
Radio
- It is powerful medium for mass communication.
- Programmes meat for teachers as well as pupils is available.
- Help the teacher to supplement classroom instruction.

Tape recorder
- A Tape recorder is used to record sound on magnetic tape which can be reproduces many times as possible.

Public Address System
- Public address system is very effective when the teacher handling large number of students at the same time.
- Public Address System can be used for supplement other Audio Aids.

Topic No. 86

Hacker

Hacker is a person who spends their time trying to gain access to information stored on other people's computers all around the world. Some hackers are just harmless browsing types, but other has more invidious aims such as grabbing details of your credit cards or bank account, which may be stored in a file somewhere on your computer. If you access the Internet regularly you should consider installing a Firewall to protect yourself against hackers.

Hard Disk

Hard Disc is a hard disc consists of a single rigid magnetic disc or a set of such discs enclosed within a metal case, i.e. a hard disc drive, which is mounted internally in your computer and is used for storing the computer programs and data that it needs in order to work. External hard disc drives can also be obtained for additional storage capacity or backup storage. Hard discs can contain vast amounts of data, usually measured in gigabytes.

Topic No. 87

Homepage

Homepage or Home Page is the main Web page of a business, organization or school, or of a personal website. From this page links are made to other pages on the same site and to external sites. Most people usually set up their Browser to open with this page when it starts up.

Hyper Link

Hyperlink is a contraction of hypertext link, the essence of Hypertext and the HTML language used for creating pages on the World Wide Web. In a Web document a hyperlink can be a sequence of letters or an image. By clicking on the area designated as a hyperlink by the person who created the Web page, it is possible to jump quickly to another part of the page, a different page on the same website, or to a completely different website. Hyperlinks can also be inserted into a Word document, enabling the reader to jump from one point in the document to another, or out of the document to a website.

Topic No. 88

Input and Input Device
- Input is anything that goes into a computer in order to be processed and/or stored. Also used as a verb.
- Input Device is any device that is capable of inputting information into a computer system, e.g. a Keyboard, Microphone, Mouse or Scanner.

Interface

An interface in computer jargon is a connection between two systems. It can be Hardware or Software. It may take the form of a plug, cable or socket, or all three, for example where a Printer or Scanner is connected to a computer, and then it's a hardware interface. There are also software interfaces that enable one program to link with another, passing across data and variables. The term interface, also known as user interface, also describes the software that is used to enable human beings to communicate with a computer, for example Microsoft Windows, which is a Graphical User Interface (GUI) in common use on personal computers.

Topic No. 89

Internet Service Provider (ISP)

Internet Service Provider (ISP) is defined as, a company that provides a subscription service to enable you to access the Internet. An ISP has a network of computers permanently linked to the Internet. When you take out a subscription with an ISP they link your computer to their network, usually via an existing telephone line, but dedicated lines are also provided by some ISPs. ISPs also give you an Email address and space on the World Wide Web for setting up your own website.

IP address

IP Address is short abbreviation for Internet Protocol Address. The unique numerical address of a computer on the Internet, expressed as four sets of numbers (maximum 3 digits each) separated by dots: e.g. 150.237.176.24 for one of the computers at the University of Hull - where the ICT4LT website is located. Computers on the Internet are nearly always referred to by more memorable domain names, which are mapped onto their IP address by special Internet computer known as name servers.

Topic No. 90

Java and Java Script

*   Java is a programming language, invented by Sun Microsystems, that is specifically designed for writing programs that can be downloaded to your computer through the Internet and immediately executed. Using small Java programs, called applets, Web pages can include functions such as animations, interactive sequences, etc. You need to set up your browser to enable it to interpret and run the Java applets. Java is similar to a programming language known as C++ but it has been considerably simplified. Not to be confused with Java script.
*   JavaScript is a script language, a system of programming codes that can be embedded into the HTML code of a Web page to add functionality, e.g. interactive sequences, questionnaires, etc. Although it shares many of the features and structures of the full Java language, JavaScript is essentially quite different and was developed independently.

JPEG or JPG

JPEG or JPG is an abbreviation for Joint Photographic Expert Group. It is pronounced "JAYPEG". It is referred as a file format used for storing images. The JPEG/JPG format uses a palette of millions of colors and is primarily intended for photographic images. The internal compression algorithm of the JPEG/JPG format, unlike the GIF format, actually throws out superfluous information, which is why JPEG/JPG files containing photographic images end up smaller than GIF files containing photographic images. If you store an image, say, of a flag containing just three colors in JPEG/JPG format it may end up bigger than a GIF file containing the same image, but not necessarily a lot bigger. It depends on the type and range of colors it contains. JPEG/JPG files containing photographic images are normally smaller than GIF files containing photographic images. JPEG/JPG files are commonly used for storing images on the Web.

Problems in the use of Audio Visual Aids

*   Apathy of the teachers
*   Ineffectiveness of the aids
*   Financial restrictions
*   Absence of electricity/infrastructure
*   Lack of facilities for training
*   Activity Aids

Topic No. 91

Karaoke Microphone

Karaoke Microphone is a popular name for a type of microphone that is more accurately described as a Dynamic Microphone.

Learning Object

Learning Object is a self-contained piece of learning material with an associated learning objective. Essentially, a learning object should be capable of being reused in a variety of applications and may be described as a Reusable Learning Object (RLO). Examples include interactive sequences made up of different combinations of texts, images, audio and video clips, and self-contained exercises that might be incorporated into a website or Courseware created with the aid of an Authoring Tool, or a Virtual Learning Environment (VLE).

Topic No. 92

Learning Platform

Learning Platform is a term used to describe the software and systems that are used to deliver E-learning. Some confusion surrounds this term: sometimes it is used synonymously with Virtual Learning Environment (VLE) and sometimes with Managed Learning Environment (MLE). Many people use it as a catch-all term to describe software and systems designed to manage, deliver and provide access to E-learning materials.

Microcomputer

Microcomputer is a generic name for a class of computers distinct from bigger mainframe computers and minicomputers. Two of the defining characteristics of a microcomputer are that it should be built around one Microprocessor and that it should be standalone, i.e. capable of operating independently from any other computer or computer Network to which it might be connected. Modern Desktop Computers and Laptop Computers fall into this category.

Topic No. 93

Mother Board

Motherboard is the main electronic circuit board of a microcomputer, to which other circuit boards (also known as cards) can be connected in order to fulfill special functions, e.g. a Sound Card or Video Card. Typically, the motherboard contains the BIOS, CPU, RAM, ROM and all the controllers required to control standard peripheral devices, such as the Display Screen, Keyboard and disc drives.

Pixels

Pixel is a contraction of picture element. What you see on a computer Display Screen is made up of thousands of colored pixels or small dots, which can be set according to the user's choice to produce either low resolution output, medium resolution output or high resolution output, the usual combinations of pixels across each line of the screen (horizontal pixels) and down each line of the screen (vertical pixels) being 640 x 480, 800 x 600, 1024 x 768, 1280 x 1024. Thus, it indicates that the more pixels on the screen, the higher the resolution (i.e. producing a finer, sharper image) and the greater the variety of colors that can be displayed.

Different Types of Field Trips
Field Trip and Excursions

- Excursions usually involve a tour by a person or a group of person to some selected lace.
- An excursion undertaken for gathering objective based learning experience is study tour.
- The tour made by a group is often known as Field Trip.
- Provides direct experience leading to effective understanding.

Exhibition

- In exhibition variety of items exhibits related to teaching and learning.
- Exhibitions are effective modes of mass communication and instruction.
- Special talents of the pupil get revealed and creativity can be fostered.
- Helps to communicate novel ideas to children, their parents and the general public.

Demonstration

- It is a technique which is often used by all teachers.
- Ideas, skills, attitudes and process can be demonstrated.
- Demonstration should be purposeful, simple, specific and effective.
- Demonstration should be planned and rehearsed well in advance.
- If demonstration designed by the cooperative activity of pupil and teaches, it will be more effective.

Dramatization

- Dramatization gives a reality and concreteness to learning experience.
- Gives opportunity for self-expression

- Very useful for the subject like social science and languages.
- Since emotional content is strong, it helps in the development of interest, attitude and values.

Museum
- Museum is powerful medium for public education.
- Museums are repositories with an array of educational materials including rare specimens a variety of objects arranged in a logical order.

Planetarium
- A planetarium consist of essentially of a dome usually mounted on the ceiling of a hall to represents the sky.
- A special projector is used to display images of the celestial bodies on the dome.
- The viewers who are seated below can see the projected images that can be appear to be realistic.
- The projector consists of various individual units for projecting the sun, moon, planets and stars.
- Taped narration and sound effects adds to the effectiveness of the presentation.

Aquarium
- Aquarium consists of glass tanks filled with water in which aquatic creatures are kept in naturally.
- Pupils can observe the natural behavior of the creatures.
- If a school aquarium is constructed and maintained by the pupils they get very valuable learning experience related to various aspects of life science.

Terrarium
- Terrarium is an arrangement for presenting the creatures living on the surface and below the surface of the earth for study purpose.
- It is an enclosure, usually a tank. Used for rearing plants or animals under natural conditions.

Vivarium
- It is live corner arranged in school or at home where creatures living in the air are grown and reared.
- It provides opportunity for an unlimited amount of spontaneous, undirected observation and enjoyment.

Topic No. 94

ABI/Inform
- It is a database of articles in more than 800 business-related periodicals and specialty publications since 1986.

Access Provider
- It may be defined as, the company that provides Internet access and, in some cases, an online account on their computer system.

Topic No. 95

Acoustic Coupler
- It is a type of modem which converts digital signals into sound for transmission through telephone lines, and performs the reverse operation when receiving such signals. Acoustic couplers generally have cups for the telephone handset.

Active Window
- It is the top or front window in a multiple window environment.

Exposure and use of ICTs on school and future employment
- The impact of ICT use in school and student exposure to ICTs, and the nature of use and exposure, on student employability in developing has not been well documented. Tracer studies of the impact of ICTs on further study and employment would be useful, as this could be a useful additional measure of educational quality, beyond standardized testing results.

Topic No. 96

A/D Converter
- A device used to convert analog data to digital data. Analog data is continuously variable, while digital data contains discrete steps.

Additive Primaries
- It is red, green, and blue are the primary colors of light from which all other colors can be made.

Topic No. 97

Address Resolution
- It is the conversion of an IP Address to the corresponding low-level physical address.

AIX
- It is regarded as Advanced Interactive Executive - IBM's version of Unix.

Topic No. 98

Aliasing
- These are visibly jagged steps along angled or object edges, due to sharp tonal contrasts between pixels.

Analog
- It continuously gives variable signals or data.

Topic No. 99

Anonymous Login Convention (FTP)
It is the standard username *(anonymous)* and password *(guest)* which allows login within FTP for the purpose of retrieving an unprotected file.

ANSI
This is the abbreviation of American National Standards Institute. This organization is responsible for approving U.S. standards in many areas, including computers and communications. Standards approved by this organization are often called ANSI standards (e.g., ANSI C is the version of the C language approved by ANSI).

Topic No. 100

Application
It is software that lets users do relatively complex tasks, as well as create and modify documents. Common application types include word processors, spreadsheets, database managers, and presentation graphics programs.

ARA
This is the abbreviation of Apple Talk Remote Access. A protocol (and product) that provides system-level support for dial-in (modem) connections to an AppleTalk network. With ARA, you can call your desktop Mac from a PowerBook and remotely access all the available services files, printers, servers, e-mail, etc.

Impact of 'computer-literacy' instruction on schools
In most circumstances in schools, ICTs are used almost exclusively to provide instruction in "computer literacy'. Emerging research from OECD experience suggests such instruction may not be a productive use of time or resources.

Topic No. 101

Archie
It is an information system offering an electronic directory service for locating information in the Internet that is automatically updated. The best known use of Archie is for scanning a database of the contents of more than 1000 Anonymous FTP sites around the world with more than 2,100,000 file names.

ARP
This is the abbreviation of Address Resolution Protocol. It is used to dynamically discover the low-level physical network hardware address that corresponds to the high level IP Address for a given host, for instance. ARP is limited to physical network systems that support broadcast packets that can be heard by all hosts on the network. See also **Proxy ARP.**

Topic No. 102

ARPANET

This is the abbreviation of Advanced Research Projects Agency Network. It is regarded as a pioneering long-haul network funded by ARPA, an agency of the U.S. Department of Defense responsible for the development of new technology for the military. It served as the basis for early networking research as well as a central backbone during the development of the Internet. The ARPANET consisted of individual packet switching computers interconnected by leased lines.

ASCII

It is abbreviation of American (National) Standard Code for Information Interchange. It is a standard character-to-number encoding widely used in the computer industry.

Topic No. 103

Associate

It is linking a document with the program that created it so that both can be opened with a single command.

AV

This is called Audio Visual. AV Macintosh models have video capture hardware and have sophisticated sound and video recording capabilities.

Topic No. 104

AU sounds

This is a type of audio format used in the World Wide Web.

Byte

It is usually regarded as one character of information, usually eight bits wide.

Topic No. 105

Backbone

It is a network used to interconnect several networks together.

Backup file

In Windows 95, it is a compressed version of the original file and its locations created by Backup.

Integration of subjects with ICT

Data is mixed on the impact of ICT use on student achievement. Even where emerging best practice points to what should be done, ICT-related interventions in education are typically only one factor (and typically only a minor one) in a complex mix of inputs into educational achievement. That said, while emerging best practice exists, there are presumably many examples of "worst practice" on interventions in education that do not positively impact student achievement.

The identification of activities that have been demonstrated to have no positive impact on student achievement, as well as those that have a negative impact on student achievement, could help donors as they advise education (and other) policymakers on what not to do.

An analysis of where ICTs are inappropriate tools to help meet EFA challenges should include an examination of the necessary enabling environments that must exist if ICTs are to be used 'effectively'. Such an analysis might be especially useful, given that many of the promises of ICTs for education are dependent on their use to enable and support educational change, while in practice many if not most ICT in education interventions in LDCs are used to extend and support existing educational practices. A few large-scale cross-national studies of the impact of ICTs in education in LDCs have been done (most notably SITES Module 2 and the evaluation of the World Bank's pilot World Links for Development initiative). These studies included expensive and time-consuming data collection efforts. The data collected, which is publicly available, has not for the most part been evaluated by third-party groups not affiliated with the groups who designed, commissioned, collected and evaluated the data, although the researchers involved in such studies have pointed out the potential usefulness of the data collected for other researchers. Given the vast amount of data already collected and available for analysis, it is recommended that this data be further mined and evaluated to see what light can be shed on potential uses (and misuses) of ICTs to help meet EFA goals.

Topic No. 106

Bandwidth

It is the capacity of the transmission medium stated in bits per second or as a frequency. The bandwidth of optical fiber is in the gigabit or billion bits per second range, while Ethernet coaxial cable is in the megabit or million bits per second range.

Baseband System

This is a baseband system transmits signals without converting them to another frequency and is characterized by its support of one frequency of signals. Ethernet-based networks inside campus buildings are transmitted via baseband coaxial cable, with Ethernet being the only service supported by the coaxial cable.

Topic No. 107

BAT

This is filename. It is an extension for a batch file.

Batch Scanning

This may be defined as sequential scanning of multiple originals using previously defined, unique settings for each.

Topic No. 108

Baud

It is a unit of measurement that denotes the number of bits that can be transmitted per second. For example, if a modem is rated at 9600 baud it is capable of transmitting data at a rate of 9600 bits per second. The term was derived from the name of J.M.E. Baudot, a French pioneer in the field of printing telegraphy.

BBS

This is an abbreviation of Bulletin Board Service. It is a non-commercial dial-up service usually run by a user group or software company. By dialing up a BBS with your modem, you can exchange messages with other users, and upload or download software.

Topic No. 109

BGI

This is an abbreviation of Binary Gateway Interface. It provides a method of running a program from a Web server. Similar to a Common Gateway Interface (CGI). The BGI uses a binary DLL which is loaded into memory when the server starts. While more efficient and a CGI, the BGI must be compiled and is not easily portable to other environments.

Bilevel

This may be defined as a type of image containing only black and white pixels.

Topic No. 110

Binary

This is a numbering system with only two values: 0 (zero) and 1 (one).

Binary File

It is a file that contains more than plain text (i.e., photos, sounds, spreadsheet, etc.) In contrast to an ASCII file which only contains plain text.

Useful set of 'core' indicators for ICT

Given the great variety of circumstances and challenges, and the great variance in the use of ICTs in education from country to country, it would be unrealistic (and inappropriate!) to attempt to formulate a uniform set of indicators that can be used to frame data collection for ICT in education projects. That said, it would be quite useful to have a set of commonly agreed upon, 'core' indicators that can be used across countries. Important criteria to be observed in formulating these core indicators would include local relevance, reliability and robustness when these are used for comparison of one ICT project or country with another.