Quadrant-I (e-Text)

Details of Module and its structure

Module Detail	
Subject Name	Education
Course Name	ICT in Education
Course Code	EDU504
Module Name/Title	Role of Technology: emerging practices, visual literacy, media literacy and new media literacy; Computer hardware fundamentals; Computer network: LAN, WAN and internet; Software: meaning, types with respect to proprietary software, open source software, system software and application software.
Module Code	IIE005
Pre-requisites	Students should know the basics of computer
Learning Outcomes	After going through this lesson, the learners will be able to: 1. Familiarize with computer hardware and software and various types of software and its applications. 2. To get acquainted with flowchart visualization and its construction. 3. Analyse operating system and its types and use of different types of networks. 4. Visualize widely used network media and Familiarize with network hardware and their usage. 5. Evaluate various types of network topologies and their benefits and limitations.
Keywords	Visual Literacy, Media literacy, New Media literacy, hardware, software, Networking,

1. **Development Team**

Role	Name	Affiliation
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Table of Contents

1. ROLE OF TECHNOLOGY

In recent years when Information and Communication Technology has advanced on all fronts, its use as an instrument of education has assumed added significant in all levels and types of education. A variety of educational technology media and methods are being developed and utilized to improve teaching, training and learning process.

Education system all round the world is under increasing pressure to use the ICTs to teach students the knowledge and skills they need in the 21st century. The 1998 UNESCO World Education Report, states, "To effectively harness the power of the new ICTs to improve learning, the following essential conditions must be met:

- ➤ Students and teachers must have sufficient access to digital technologies and the Internet in their classrooms, schools and teacher education institution.
- ➤ High-quality, meaningful and culturally responsive digital content must be available for teachers and learners.
- ➤ Teachers must have the knowledge and skills to use the new digital tools and resources to help all students achieve high academic standards.

1.1 EMERGING TRENDS IN TECHNOLOGY

The advent of increased and easier access to virtual environment platforms in the education sector, promises a host of innovative breakthrough learning models. These platforms for "digital classrooms" include the use of technologies such as Smart/Interactive White Board, Virtual Reality (VR), Augmented Reality (AR), Mobile Augmented Reality (MAR), etc. Especially, with the deep penetration and accelerated adoption of mobile technologies. Virtual reality is one of those top technologies which is going to be a part and parcel of the future classroom. Five seconds in VR world is capable of giving knowledge equivalent to 1000 words. Virtual realities make it possible to experience things which were otherwise limited to students' imagination. In the world of virtual reality, the students can explore and even build their own world, which further leads to creation of their own knowledge.

Augmented Reality (AR) is a technology that allows computer-generated virtual imagery information to be overlaid onto a live direct or indirect real world environment in real-time (Azuma, 1997; Zhou, Duh, & Billinghurst, 2008).

Augmented Reality is "a real-time view" of a physical environment "enhanced" by adding "computer-generated digital information" to that environment. AR is a technology that layers computer-generated enhancements atop an existing reality in order to make it more meaningful through the ability to interact with it. AR is developed into apps and used on mobile devices to blend digital components into the real world in such a way that they enhance one another, but can also be told apart easily.

> Let's learn about various concept which are important from students as well as teachers' point of view to integrate technology in education successfully

2.   VISUAL LITERACY

We are a visually illiterate society. ... Three R's are no longer enough. Our world is changing fast—faster than we can keep up with our historical modes of thinking and communicating. Visual literacy—the ability to both read and write visual information; the ability to learn visually; to think and solve problems in the visual domain—will, as the information revolution evolves, become a requirement for success in business and in life.

—Dave Gray, founder of visual thinking company XPLANE

2.1 Meaning of Visual literacy

Visual literacy has been defined as the "ability to understand, interpret and evaluate visual messages" (Bristor & Drake, 1994).

According to Wikipedia (2011), "Visual literacy is based on the idea that pictures can be 'read' and that meaning can be communicated through a process of reading."

Earlier Visual literacy term was mainly used in terms of Arts. In the arts, students learn how to look at a painting and how to read, analyze, and

deconstruct the techniques used by the artist. But in today's techno era, the learning material is so varied and visual. In this context, the need for visual literacy has spread to all disciplines.

Visual images are commonly and very effectively used to communicate information. It has become essential for us to develop visual literacy among students.

Visual images like photos or pictures are created with purpose so it is essential for our students to develop the capacity to read and analyze visual images. This technology era is also era of social networking. Visual images are powerful tool in social networking. Images can be utilized to impact and persuade. So, it is very important to teach our students to understand the language of images.

The Mid-Continent Research for Education and Learning Corporation offers a set of standards and benchmarks for K–12 education (Kendall, 2011)[1]. McREL's extensive Language Arts standards and benchmarks (www.mcrel.org/ standards-benchmarks) include the following:

Level III (Grades 6–8) : Understands how symbols, images, sound, and other conventions are used in visual media (e.g., time lapse in films; set elements that identify a particular time period or culture; short cuts used to construct meaning, such as the scream of brakes and a thud to imply a car crash; sound and image used together; the use of close-ups to convey drama or intimacy; the use of long camera shots to establish setting; sequences or groups of images that emphasize specific meaning, differences between visual and print media)

Level IV (Grades 9–12) 7. Understands how images and sound convey messages in visual media (e.g., special effects, camera angles, symbols, color, line, texture, shape, headlines, photographs, reaction shots, sequencing of images, sound effects, music, dialogue, narrative, lighting)

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[1] McREL from Content Knowledge: A Compendium of Standards and Benchmarks for K–12 Education.

2.2 Importance of Visual literacy

Visual comprehension requires a focused, carefully sequenced approach to develop analytical thinking and semiotically informed observational skills.

Visual literacy enables to interpret hidden meaning analytically. It is very essential in some profession like archaeology etc.Learners visualize while thinking, listening or reading for a better understanding of text. Visual literacy helps in building this capacity. It helps in day to day life while understanding many things during conversations, taking decisions based on imagination.

In today's era, everyone exposed to many visuals through social networking sites. Billions of images are shared every day. We all are influenced by media. Visual literacy helps us to understand this influence.

2.3 Levels of Visual literacy

A close analysis of how visual texts make meaning can be framed around three graduated levels. This is approached as LIE: Literal, Inferential, and Evaluative comprehension.

Level 1: Literal: Locate, Recall, Connect. What do you see? The answer is in the image. Justify answers with evidence from the text. (Students search for the information within the text.)

Level 2: Inferential: Infer and Interpret. What do you think this means? Why? What evidence in the text supports your answer? (Students use the literal information and combine it with other information from the image or context, and prior knowledge to make inferences based on this information. This requires close analysis of the text and deeper thinking about this.)

Level 3: Evaluative/Applied: Evaluate, Generalise, Hypothesise, Synthesise, think critically, think creatively, and Apply to other contexts. What do you think about this? (Students combine the literal and inferential information from the text with other ideas and knowledge to extend thinking beyond the text.)

Kennedy says. "Many of us employ visual language, often without realizing it. Being fluent in the language of images gives us an advantage at school, at work, and at home."

3. MEDIA LITERACY

3.1 Introduction

Media is indispensable part of students' learning either inside classroom or beyond classroom. All media has one thing in common. Every media is created for a purpose. First, learner must understand that purpose. This is the basis of media literacy. Students took a huge amount of information from TV, radio, newspaper and magazines. Based on this exposure, students gain knowledge, made their opinion, develop attitude. But students should have the capacity to understand the authenticity of information, assessing reliability of it and interpret correct meaning. In other words, students should be media literate.

3.2 Meaning of Media Literacy

Media Literacy is the ability to access, analyse, evaluate and create media in a variety of forms.

Media literacy encompasses the practices that allow people to access, critically evaluate, and create media. Media literacy is not restricted to one medium[2]. Media literacy is the ability to identify different types of media and understand the messages they're sending.

3.3 Importance of Media Literacy

- **Media literacy help to develop critical thinking**

While evaluating media, students think about the message, its meaning, hidden meaning, information included, authenticity of media, impact of media. It helps in the development of critical thinking of students.

- **Develop broad mindset.**

Each media is created by someone. Each one has their own perspective. Students learn to understand and appreciating different perspectives and opinions.

- **Development of civic sense:**

Students expose to media almost everywhere. Media literacy help them to use media carefully which is utmost requirement of civic citizenship. Today's world is occupied with media. From celebrity gossip to international politics media is sharing us, shaping our understanding of the world. It influences our attitude, actions in certain ways. Media literacy also concerns the ability to identify when there is a problem that impacts democracy, thus allowing the public to generate its own opinion, which can influence society

- **Create media responsibly.**

Media literacy makes you aware about the influence of media on communication in group and on society at large.

There are **four** important skills that help the viewer or reader understand the meaning of media literacy:
- Accessing media
- Analysing content
- Being able to evaluate messages
- Being able to create media for self-expression and communication

3.4 NEW MEDIA LITERACY

Today's era is era of information and technology. Everyone communicates through words, images, and sounds. New technologies for social networking are emerging ang becoming popular. We should develop literacy skills helping us to both comprehend the messages we receive and effectively utilize these tools to design and distribute our own messages. Being literate in a media age requires critical thinking skills.

This is termed as New media literacy.

New media literacy is the understanding and use of mass media tools, often relating to digital media.

New media literacy is defined as the ability to critically and suitably consume messages in a variety of digital media channels, to be involved in interactive social media, to produce and publicize communicative, public messages bearing collective meaning in social and cultural contexts.

Media literacy education for children and youth is required to promote awareness of media influence. By teaching children to have a critical eye toward media, they learn how to interpret information and communicate more efficiently, which may impact their everyday lives.

4. FUNDAMENTAL OF COMPUTER
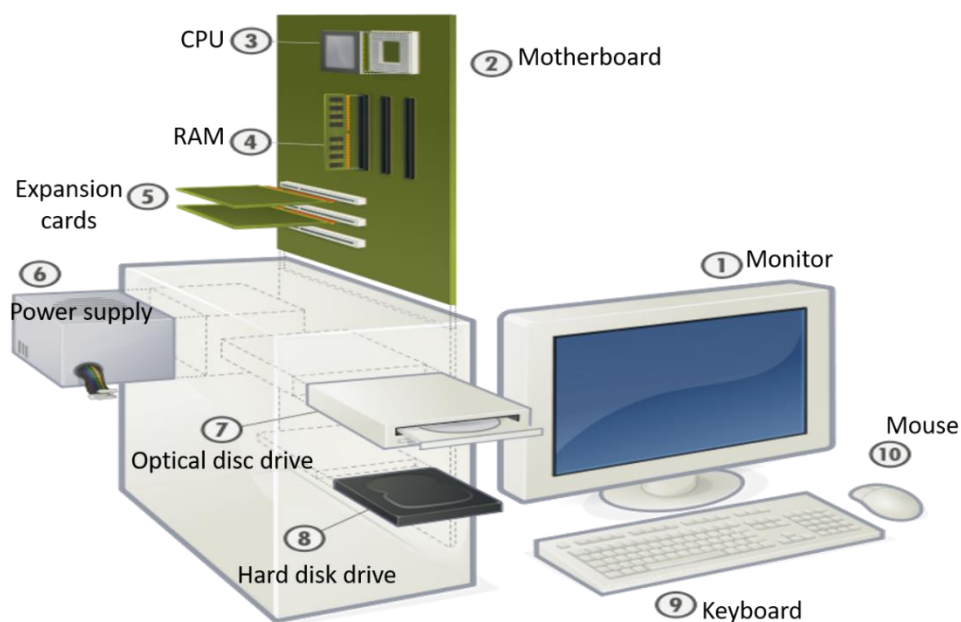
4.1 Computer Hardware: A computer system consists of hardware which comprises of physical components which are

1. **Monitor:** A monitor is an electronic visual display used as an output device for computers. It consists of display device, circuitry and an enclosure. CRT, TFT-LCD and Plasma are widely used display system for monitor.

2. **Motherboard:** A motherboard is the main printed circuit board (PCB) in computers. It consists of various fundamental electronic components of the system, such as the central processing unit (CPU), memory and provides connectors for other peripherals.

3. **CPU:** A central processing unit (CPU) is the brain of a computer. It executes the instructions of a computer program by performing the basic arithmetical, logical, and input/output operations of the system. A computer having more than one CPU is called multiprocessor computer. Two typical components of a CPU are the arithmetic logic unit (ALU) and control unit (CU). The ALU performs arithmetic and logical operations and the control unit (CU), extracts instructions from memory and decodes and executes them in a synchronized manner.

4. **RAM:** Random-access memory is a form of computer data storage and it is also known as primary or main memory. Normally, it is volatile is nature due to which the stored information will be lost if power is switched off. A random-access memory allows stored data to be accessed directly in any random order.

5. **Expansion cards:** In order to bring more functionality to a computer system, expansion cards can be inserted into the expansion slots. These cards may be graphics cards, sound cards or network cards.

6. **Power supply:** To make computer operational, a power supply is required. It converts AC into low voltage regulated DC power.

7. **Optical disc drive:** It is a disk drive which uses laser light for reading and writing data to the disk. Some of these disks have read only capability while others can write data also. Compact discs, DVDs, and Blu-ray discs are some commonly used optical media.

8. **Hard disk drive:** A hard disk drive (HDD) is a data storage device which is used for storing and retrieving information using rapidly rotating discs coated with magnetic material. An HDD retains its data even after the removal of power.

9. **Keyboard:** It is the input device (similar to typewriter) for computer. The information is feed by the keyboard to the computer. A keyboard

typically has alphabets, characters, numerals, symbols etc. engraved on the keys. Some keys perform specific actions or execute computer commands. For example, ctrl, alt, delete combination brings up a task window or shuts down the machine.

10. **Mouse:** It is a pointing input device that functions by detecting two-dimensional motion relative to its supporting surface. An Optical mouse uses a LED and photodiodes to detect movements relative to a surface and replaced mechanical mouse which used a ball for recognizing movement.

5. COMPUTER NETWORK

5.1 Introduction

In the present era, internet has transformed the world into a global village. In addition, Internet has brought us close and well connected with each other. But, it is all possible because of giant network of computers and devices which makes internet available all the time.

Computer Network is basically a group of computers or devices like mobile phones that are linked together through communication medium like cables, satellites to communicate or share the resources like printer, CD, files and services.

5.2 Need

In modern times, a computer network is essential for the success of an organization. Within an organization, it is created to provide a means of transmitting crucial data such as money transaction or confidential data from one computer to another.

In general, the important benefits of computer networks could be:

➔ **File sharing:** Networking of computers helps the users to share data files.

➔ **Hardware sharing:** Users can share devices such as printers, scanners, CD-ROM drives, hard drives etc.

➔ **Application sharing:** Applications can be shared over the network, and

this allows implementing client/server applications.

➔ **User communication:** Networks allow users to communicate using e-mail, newsgroups, and video conferencing etc.

➔ **Network gaming:** Lots of games are available online, which can be played by multiple users simultaneously.

In brief, it is hard to imagine the world without emails, online newspapers, videos, blogs, chat and the other services like social networking, online shopping, reservation etc. offered by the internet.

5.3 Types of Network
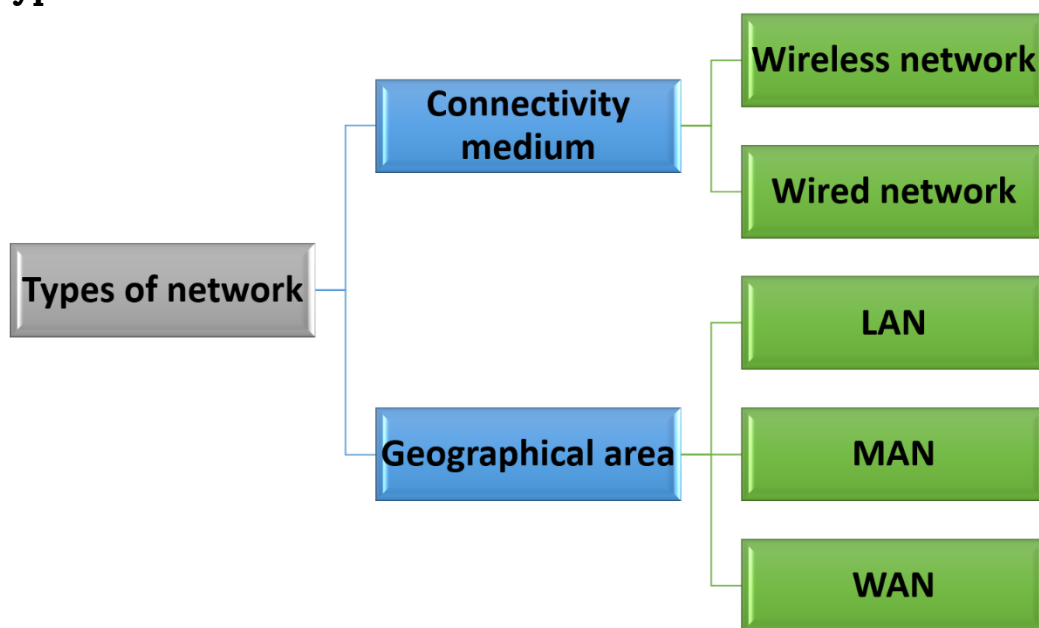
Based on the connectivity medium, we can classify computer networks into two categories

➔ Wired network
➔ Wireless network

In a typical wired network, twisted-pair cable, co-axial cable, optical fiber cable etc. can be used as a communication medium. On other hand, a wireless network may use radio waves or infrared signals for communication. A wired network is preferred for security and economic issues. A wireless network provides convenience and flexibility over a wired network.

In terms of geographical area covered, the network can be classified as

➔ Local Area Network (LAN)
➔ Metropolitan Area Network (MAN)
➔ Wide Area Network (WAN)
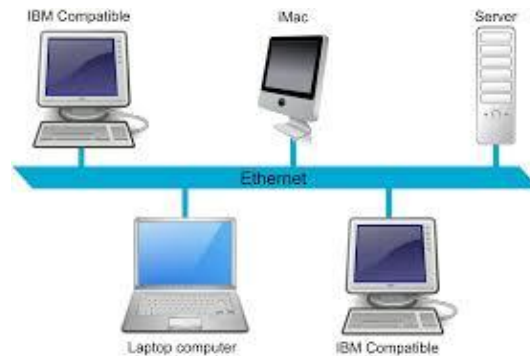
A LAN basically connects a relatively small number of machines in small geographical area like room, Building or a Campus within an organization. For example, Ethernet is one of the most popular technologies preferred for LAN.
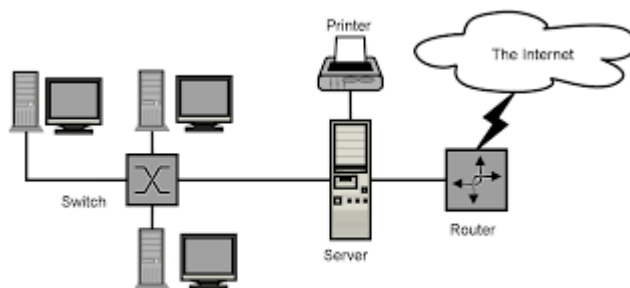
The communication infrastructures that have been developed in and around large cities is called as MAN. For example, voice communication services offered by a service provider in a city is an example of MAN.
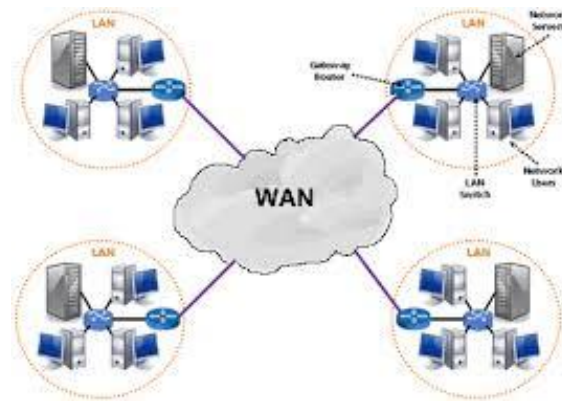
A network that links two or more local-area networks over a potentially large geographic distance like countries is known as WAN. The internet, very common now days, is essentially a wide area network, spanning the entire globe.
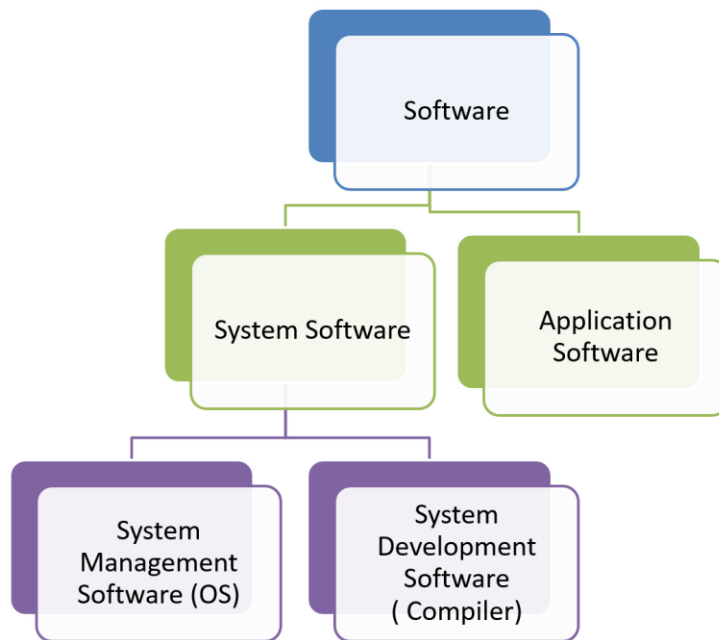
6. SOFTWARE

When you turn on your computer, You move mouse anywhere on the screen, surfing your word files or Internet browser. Although you may feel like a controller in front of your desktop or laptop, there's a lot going on inside, and the real man behind the screen handling the necessary tasks is software.

Meaning of software: Software is the set of instruction. It is collection of computer program which tell the hardware how to work and perform different tasks on a computer system. At the lowest level, software is in the form of an assembly language, a set of instructions in a machine-understandable form. At the highest level, software is in a form of high-level language, which are compile or interpreted into machine language code. Meaning of software Software can be referred as a set of programs, procedures, algorithms and its documentation concerned with the operation of applications belonging to domains like business, education, banking etc. Without software, there is no utility of computer hardware. Software provides the information to the computer hardware about what to do and how to do. Software is generally divided into two categories:

6.1 System Software:

Systems Software consists of a set of programs that support the operation of a computer system. It helps the programmer to simplify the programming process and create an environment to run application software efficiently. System software is the basic requirement of a computer system.

Systems software are of two types Operating system and Utilities like Text editors, Compilers, Loaders, Linker, Debugger, Assembler

6.2 Operating system: An operating system is a collection of integrated computer programs that provide recurring services to other programs or to the user of a computer. These services consist of disk and file management, memory management, and device management. It manages CPU operations, input/output activities, storage resources, diverse support services, and controls various devices.

Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.

Examples of operating systems are Windows (PC) and Leopard (Mac) and Linux.

Utilities

Text editor: It is a software that permits the creation and editing of text files (i.e. application programs). It is a tool that allows a user to create and revise documents in a computer.

Compiler: Compiler is a system software which converts high level language program into machine language program. A compiler processes statements written in a particular programming language and turns them into machine language or "code" that a computer's processor uses.

Assembler: Assembler is a software which converts assembly language program into machine language program. It takes basic computer instructions and converts them into an object code or machine code to perform its basic operations.

Static Linker: It Combines and resolves references between object programs and creates the executable code.

Debugger: It is a program used to find errors (bugs) in other programs. A debugger allows a programmer to stop a program at any point and examine and change the values of variables.

Loader: Loader is a part of an operating system. it loads the exe module from secondary memory into main memory and transfers the control of execution to the starting of exe program.

Linker: Linker links the subprograms or procedures of an object file, if a file sum.obj is input for linker then the output file will be sum.exe.

Device driver: A device driver controls a particular type of device that is attached to your computer, such as a keyboard or a mouse. The driver program converts the more general input/output instructions of the operating system to messages that the device type can understand.

6.3 Application Software:

We use Microsoft word for making word file, use Microsoft power point to make power point presentations. All this software is used to do specific task. This software is known as Application software.

Application software is a set of one or more programs designed to solve a specific problem or do a specific task. Application software, also known as an application or an app, it is computer software designed to help the user to perform specific tasks. Suppose we want to edit our photos; we have many application software like adobe Photoshop to perform this particular task.

Application software manage and integrate a computer's capabilities, but typically do not directly apply in the performance of tasks that benefit the user. The system software serves the application, which in turn serves the user. System software is like a bridge which supports rail tracks which support trains, allowing the trains to transport passengers.

Application software run under System Software and are made to do a specific task i.e. (Word Processing etc.), which have indirect access to the hardware (i.e. Behind System Software).

Some more examples application software are Opera (Web Browser), Microsoft Word (Word Processing), Microsoft Excel (Spreadsheet software), Microsoft PowerPoint (Presentation Software)

Classification of Application Software - There are many types of application software:

- **An application suite** consists of multiple applications like related functions, features bundled together. Business application often come in suites, e.g. Microsoft Office, LibreOffice and iWork, which bundle together a word processor, a spreadsheet, etc.
- **Enterprise software** addresses the needs of an entire organization's processes and data flow, across most all departments, often in a large distributed environment. Examples include travel expense management and IT Helpdesk.

- **Enterprise infrastructure software** provides common capabilities needed to support enterprise software systems. Examples databases, email servers, and systems for managing networks and security.

- **Information worker software** lets users create and manage information, often for individual projects within a department. Example time management, resource management, documentation tools, analytical, and collaborative.

- **Content access software** is used primarily to access content without editing but may include software that allows for content editing. Example media players, web browsers, and help browsers.

- **Educational software** is related to content access software but has the content and/or features adapted for use in by educators or students. E.g. GeoGebra

- **Simulation software** simulates physical or abstract systems for either research, training or entertainment purposes. E.g. ANSYS, AnyLogic, MATLAB

- **Media development software** generates print and electronic media for others to consume, most often in a commercial or educational setting. This includes graphic-art software, desktop publishing software, multimedia development software, HTML editors, digital-animation editors, digital audio and video composition.

- **Product engineering software** is used in developing hardware and software products. This includes computer-aided design (CAD), computer-aided engineering (CAE), computer language editing and compiling tools, integrated development environments, and application programmer interfaces.

Categories – All this software are categorized under different categories based on some peculiar features.

6.4 Open source software (OSS)

Open source software is computer software whose source code is available under a license that permits users to use, change, and improve the software, and to redistribute it in modified or unmodified form e.g. Linux, Netscape, Apache, etc.,

6.5 Proprietary software

Proprietary software (also called non-free software) is software with restrictions on using, copying and modifying as enforced by the proprietor. Ex: CAD, Nortan Antivirus

Proprietary software remains the property of its owner/creator and is used by end-users/organizations under predefined conditions.

Proprietary software may also be called closed-source software or commercial software.

Some common Personal Application software used are -

Word Processors: Word processing is a tool that helps user in creating, editing, and printing documents. Examples: WordPerfect and Microsoft Word

Spreadsheets: Provide a wide range of inbuilt functions for statistical, financial, logical, database, graphics, and date and time calculations. The most commonly used spreadsheet programs are Microsoft Excel and Lotus 123.

Graphic Presentations: Develop graphs, illustrations and drawings. The presentation programs can make giving presentations and using overheads easier. The most recognized graphic presentation programs are Microsoft PowerPoint and Harvard Graphics.

Database Management System (DBMS): A DBMS is a software tool that allows multiple users to store, access, and process data into useful information. Example: Microsoft Access, dBASE, Oracle.

Desktop Publishing (DTP) – Use with personal computers and high-resolution printers to create high- quality printed output, including text and graphics. Various styles of pages can be laid out: art and text files from other programs can also be integrated into published pages. E.g. QuarkXPress Publisher, PageMaker Ventura Publisher.

Web Browsers provide an easy to surf the Internet. It Uses search engines to find people, places, and things world-wide. The two most popular web browsers are Netscape and Microsoft Internet Explorer.

7. Summary

We should utilize the technological advancement to cope with the knowledge explosion and expansion. Technology is no doubt the revitalizing antidote for

a stagnating educational system, but the idea situation would be a judicious blend that optimizes the advantages of both the traditional and technological educational systems.

"We must act now. We cannot wait for everything to be right, for bandwidth to increase and technology penetration to increase in school. Many things in life can wait. But the child cannot. Now is the time when his bones are being formed, his blood is being made and his mind is being shaped. His name is not tomorrow. It is today."

-Argentinean writer Gabriella Marcall

Quadrant-III

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GLOSSARY

Computer Network –Group of computers connected together through communication medium.

LAN- Local Area Network

MAN - Metropolitan Area Network

WAN- Wide Area Network

Ethernet- A family of communication media used for LAN. It comprises both wired and wireless LAN technologies.

Client and Server Network- It uses high-end servers to serve clients by providing specific services on the client request.

Peer-to-Peer Network- Point to Point Network- A Peer-to-Peer network has no fixed servers and clients.

MAC- Media Access Control which is used to distinguish two computers on a network.

Packet – A unit of transmission used by network layer. Refer OSI model for further details.

Frame – A unit of transmission used by data link layer. Refer OSI model for further details.

Octet – A grouping of 8 bits.

Repeater - A repeater is a network device that receives a network signal as input, removes the noise, and regenerates the signal.

Hub - A hub is basically a multi-port repeater. Repeaters and hubs have been mostly replaced by modern switches.

Bridge - A network bridge connects multiple network segments to form a single network.

Switch - A network switch enables other network devices within a network to talk to each other.

Router - A router is an internetworking device that forwards packets between two or more networks.

Firewall -A firewall is a network device used for the purpose of network security and controlled access.

Network topology: A physical layout of computers, cables, and other components on a network.

Mbps- Mega bits per Second (10^6 bits/second)

Gbps- Giga bits per Second (10^9 bits/second)

Tbps- Tera bits per Second (10^{12} bits/second)

Software: Software is a collection of computer programs which tell the hardware how to work and perform different tasks on a computer system.

System software: Systems Software consists of a set of programs that support the operation of a computer system.

A**pplication software:** It is computer software designed to help the user to perform specific tasks.

System program: A system program is a program which aides in effective execution of a general use computational requirements on a computer system.

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Loader: Loader is a part of an operating system which loads the exe module from secondary memory into main memory and transfers the control of execution to the starting of exe program.

Debugger: It is a program used to find errors (*bugs*) in other programs.

Device driver: A device driver is a form of software application that is designed to enable interaction with hardware devices.

Quadrant-IV (Self-Assessment)

Q.1   Which one enables the computer to output sound is

   (a) Extension card

   (b) System program

   (c) Motherboard

Q.2 Webcam is an example of

   (a) Input device

   (b) Output Device

   (c) Expansion card

Q.3   Software which perform specific task is

   (a) System software

   (b) customized software

   (c) packaged software

Ans. B

Q.4   Which one is the example of operating system software

   (a) Spreadsheet

   (b) Word Processing

   (c) Windows XP

Q.5   The following is an example of application software:

   (a) Internet

   (b) OS

   (c) Video Game

Q.6   Which of the following is an example of hardware :

   (a) Firmware

   (b) Disk Defragmenter

   (c) Expansion card

Q.7 Which of the following is not a type of Computer Network?

   a. Local Area Network (LAN)

   b. Wide Area Network (WAN)

   c. Remote Area Network (RAN)

Q.8 A computer communication technology that offers a technique to interconnect multiple computers across short distance is

  a. LAN

  b. MAN

  c. WAN

Q.9 Visual literacy is the ability to

  a. Draw images

  b. Color images

  c. Interpret images

Q.10 Ability to analyze the meaning of posts on social networking is _____.

  a. Visual Literacy

  b. Media Literacy

  c. New Media Literacy

Q.11 Media literacy is not the ability to

  a. create media

  b. evaluate media

  c. spread the media

Q.12 WAN stands for

  a. Wap Area Network

  b. Wide Area Network

  c. Wireless Area Network

Q. 13 Which part of the computer is directly involved in executing the instructions of the computer program?

  a. The scanner

  b. The secondary storage

  c. The processor

Q.14 .... are system software to facilitate editing of text and data

  a. MS Word

  b. Editors

  c. MS publisher

Q.15 What is LINUX ?

   a. Malware

   b. Operating System

   c. Application Program

Q.16 Which of the following is an example of open source software?

   a. Adobe Photoshop

   b. Microsoft Word

   c. Libre Office

Q.17 Which of the following groups have only Output devices?

   a. Scanner, Printer and Monitor

   b. Keyboard, Printer and Monitor

   c. Mouse, Printer and Monitor

Answers: 1. (A) 2. (A) 3. (B) 4. (C) 5 (C). 6.(C) 7. (C) 8. (A) 9. (C) 10. (C) 11. (C)12. (B) 13. (C) 14. (A) 15. (B) 16 (C)17 (A)