BUSINESS COMMUNICATION

Unit 6:

INFORMATION TECHNOLOGY FOR COMMUNICATION

Information technology: It is the use of any computer storage, networking, and other physical devices, infrastructure, and process to create, process store secure and exchange all forms of electronic data.

- Typically, IT is used in the context of business operations as opposed to technology used for personal or entertainment purposes.
- The commercial use of IT encompasses both computer technology and telecommunications.

What does information technology encompass?

The IT department ensures that the organization's systems, networks, data, and applications all connect and function properly. The IT team handles three major areas:

1. Deploys and maintains business applications, services, and infrastructure (server, network, storage)
2. Monitors, optimizes and troubleshoots the performance of applications, services, and infrastructure.
3. Oversees the security and governance of applications, services, and infrastructures.

What does word processor mean?

A word processor is a type of software application used for composing, editing, formatting, and printing documents. Word processors have a variety of uses and applications within the business environment, at home, and in educational contexts.

Word processors are used to create, edit, and print documents as well as save them electronically. Word processors have the following main functionalities:

1. Insert
2. Copy
3. Cut and paste
4. Delete
5. Find and replace
6. Print
7. Word wrap

Advanced word processors, referred to as full-featured word processors, support additional features such as:

1. File management
2. Graphics
3. Font specification
4. Footnotes
5. Cross reference
6. Headers and footers
7. Macros
8. Layout
9. Spell check
10. Thesaurus

1. **Word processor:** It is a software program capable of creating, storing, and printing typed documents. Today, the word processor is one of the most frequently used software programs on the computer, with

Microsoft Word being the most popular word processor.

Word processors can create multiple types of files, including text files (.txt), rich text files (.rtf), HTML files (.htm & .html), and Word files (.doc & .docx).

Features of word processor: Unlike a basic plain text editor, a word processor offers additional features that can give your document or other text or more professional appearance. Below is a listing of some of the most popular features of word processors.

1. **Text formatting:** Changing the font, font size, font colour, bold, italics, underline.
2. **Cut copy paste:** Once text is entered into a document, it can be copied or cut and pasted into the current document or another document.
3. **Multimedia:** Insert, clipart, charts, images, pictures, and videos into a document.
4. **Spelling and grammar:** Check for spelling and grammar errors in the document.
5. **Adjust and layout:** Capable of modifying the margins, size, and layout of the document.
6. **Find:** Word processors give you the ability to quickly find any words or text in any size of document.
7. **Search and replace:** You can use the search and replace feature to replace any text throughout a document.
8. **Indentation and list:** Set and format tabs, bullet lists, and number lists.
9. **Insert tables:** Add tables to a document.
10. **Header and footer:** Being able to adjust and change the text in the header and footer of a document.
11. **Theasaurus:** Look up alternatives to a word without leaving the program.
12. **Multiple windows:** While working on a document you can have additional windows with other documents for a comparison or more text between documents.
13. **AutoCorrect:** Automatically correct common errors (for example typing “teh” and having it autocorrected to “the”)
14. **Mailers and labels:** Create mailers or print labels.
15. **Import data:** Import and format data from CSV, database, or another source.
16. **Headers and footers**: The headers and footers of a document can be customized to contain page numbers, dates, footnotes, or text for all pages or specific pages of the document.

17. **Merge:** Word processors allow other documents and files to be automatically merged into a new document. For example, you can mail merge names into a letter.
18. **Macros:** Set up macros a perform common tasks.
19. **Collaboration:** More modern word processors help multiple people work on the same document at the same time.

2. Telex Machine-Telex Exchange Machine or Teleprinter Exchange Machine

- Telex network was a public switched network of teleprinters similar to the phone network for the purpose of sending text messages. Telex was the major way of sending text-based messages between businesses in the past World War II.
- **It was the introduction and popularity of fax machines in 1980, which led to the end of teleprinters.**
- Telex provided the first common medium for international record communication using standard signalling techniques and operating criteria as specified by the International Telecommunication Union.
- **The system delivered messages at approximately 66 words per minute. Telex originated in Germany as a research program in 1926. Then tell us to spread to entire Europe after World War II ended in 1945.**

Telex: International message transfer service consisting of a network of teleprinters connected by a system of switched exchanges.

- Communication is opened by entering the assigned call number of the destination subscriber.
- On older telex equipment this is done using a dial or the keyboard on the sender's teleprinter, but it can also be done via the keyboard on the telex terminal or on personal computers connected to the telex network.
- The destination subscriber responds with a code verifying its identity, and the communication line is opened.
- The typed messages are converted to a low-bitrate electrical signal, which is transmitted over the network. When the message arrives at the destination, it is either printed immediately or stored for subsequent printing, or displayed on the monitor.

3. Fax Machine: Short for facsimile machine, a device that can send or receive pictures and text over a telephone line.

- Fax machines work by digitizing an image and dividing it into a grid of dots.
- Each dot is either on or off, depending on whether it is black or white. Electronically, each dot is represented by a bit that has a value of either 0 (off) or 1 (on).

- In this way, the fax machine translates a picture into a series of zeros and ones (called bitmap) that can be transmitted like normal computer data on the receiving side, a fax machine reads the incoming data, translates the zeros and ones back into dots and reprint the picture.
- **The idea of the fax machine has been around since 1842 when Alexander Bain invented a machine capable of receiving signals from a telegraph wire and translating them into images on paper. In 1850, in London, an inventor named F.C. Blakewell received a patent for a similar machine which he called a "copying telegraph"**.

A fax machine consists of an optical scanner for digitizing images on paper a printer for printing incoming fax messages and a telephone for making the connection.

4. **Email:** Email (electronic mail) is the exchange of computer-stored messages.
    - It is a communication method that uses electronic devices to deliver messages across computer networks. Email refers to both the delivery system and individual messages that are sent and received.

Email has existed in some form since the 1970s when programmer *Ray Tomlinson* created a way to transmit messages between computer systems on the (ARPANET) i.e., Advanced Research Projects Agency Network.

Modern forms of email become available for widespread public use with the development of email client software. (E.g., outlook) and web browsers, the latter of which enables users to send and receive messages over the internet using web-based email clients (e.g., Gmail).

Today email is one of the most popular methods of digital communication.

5. **Voicemail:** A voicemail is an electronically stored voice message that is left by a caller to be retrieved later by the intended recipient.
    - The recipient can retrieve the stored message through phone, desktop, email, and other communications devices, depending on the business phone system the recipient's company uses.

Features of voicemail: Voicemail comes with features like a user interface to enable selecting, playing, and managing messages. There are delivery features for the sender of the voicemail to either play or deliver the message. There are also notification features that notify voicemail recipients of waiting messages.

6. **Internet:** The Internet is an important tool and resource that is being used by almost every person across the globe.
    - It connects millions of computers, webpages, websites, and services. Using the internet we can send emails, photos, videos, and messages to our contacts.
    - The Internet is a widespread interconnected network of computers and electronic devices that support the Internet.

Origin of the Internet: The Internet came in the year 1960 with the creation of the first working model called ARPANET (*Advanced Research Projects Agency Network*).

It allows multiple computers to work on a single network which was their biggest achievement at the time.

ARPANET uses packet switching to communicate multiple computer systems under a single network. In October 1969, using **ARPANET** first message was transferred from one computer to another. After that technology continues to grow.

Uses of the Internet:

1. Online businesses (e-commerce)
2. Cashless transactions
3. Education
4. Social networking
5. Entertainment.

Advantages:

1. Online Banking and Transaction
2. Education, online jobs, freelancing.
3. New job roles
4. Best communication medium.
5. Comfort to humans
6. GPS tracking and Google maps

Disadvantages:

1. Time wastage
2. Bad impact on health.
3. Cybercrimes
4. Effects on children
5. Bullying and spreading negativity

TCP/IP: It stands for transmission control. Protocol/Internet protocol and is a suite of communication protocols used to interconnect network devices on the Internet. TCP/ IP is also used as a communications protocol in a private computer network (an Intranet or extranet)

Other Protocols: list atleast 5 more.

7. Multimedia: The word multimedia is the combination of “multi” and “media”. The word “multi” signifies “many”.

- ≈ Multimedia is a type of medium that allows information to be easily transferred from one location to another.
- ≈ Multimedia is the presentation of text, pictures, audio, and video with links and tools that allow the users to navigate, engage, create, and communicate using a computer.
- ≈ Multimedia refers to the computer-assisted integration of text, drawing, still and moving image (videos) graphics, audio, animation, and any other media in which any type of information can be expressed, stored, communicated, and processed digitally.

Categories of multimedia:

1. **Linear multimedia:** It is also called non-interactive multimedia. In the case of linear multimedia, the end user cannot control the content of the application. It has literally no interactivity of any kind. Linear multimedia works very well for providing information to a large group of people such as at training sessions, seminars, workplace meetings, etc.
2. **Nonlinear:** In this, the end user is allowed the navigational control to run through multimedia content at his own desire. The user can control the movement of data for example games, websites, etc.

Applications of multimedia:

1. Education
2. Entertainment
3. Business
4. Technology and science
5. Fine arts
6. Engineering

Components of Multimedia:

1. Text
2. Graphics
3. Animations
4. Video
5. Audio

8. Teleconference: A teleconference is a live audio or audiovisual meeting with two or more participants. With the ability to teleconference, remote teams in an organisation can collaborate and communicate, even geographically depressed. The process involves technology more sophisticated than a simple two-way phone connection.

- Telecommunication systems support teleconferences by providing audio, video, and data services. Participants communicate with a teleconference platform using devices such as desktop computers, tablets, smartphones, and laptops.
- Teleconferences were initially conducted through telephone lines and were limited to audio, however now it is more common for teleconferences to be conducted online or using voice over IP (VoIP)

Types of teleconferencing:

1. **Audio teleconferencing:** Normal telephone calls but can support up to a hundred participants.
2. **Video teleconferencing:** It combines live visual and audio mediums. Depending on the vendor, video conferencing can support over a hundred participants. Users in the meeting can use features such as screen sharing or file sharing.
3. **Web teleconferencing:** Teleconference services or mediums provided online, which include web meetings, webinars, and webcasts.

History of teleconferencing: In 1956, Bell Labs became the first organization to develop the concept of teleconferencing and in 1964, AT&T exhibited the picture phone at the New York World's Fair.

- Users could speak to and see others using a black-and-white screen that managed video and audio using three phone lines. But it took until the 1990s for **AT&T** to release of more commercially viable version. "In 1973, **David Brown** developed the first chat software for the Plato Notes computer conferencing system."
- In 1989, A developer named Brian C. Wiles created **RASCAL**, which is short for ***Remote Audio Sound Card Application Link***. RASCAL{ Remote Access Scheduling Terminal. was the first application to send voice over an Ethernet network.

9. Mobile Phone Communication: A mobile phone is an electronic device used for mobile telecommunications over a cellular network of specialized base stations known as cell sites.

- A cell phone offers full duplex communication and transfers the link when the user moves from one cell to another. As the phone user moves from one cell area to another the system automatically commands the mobile phone and a cell site with a stronger signal, to switch on to a new frequency in order to keep the link.
- Mobile phone is primarily designed for voice communication. In addition to the standard voice function, new generation mobile phones support many additional services and accessories, such as SMS for text messaging, email, packet switching for access to the Internet, gaming, Bluetooth, camera with video recorder, and MMS for sending and receiving photos and videos, MP3 player, radio and GPS.

Signal Frequency in Cell Phone:

The cellular system is the division of an area into small cells. This allows extensive frequency reuse across that area so that many people can use cell phones simultaneously. Cellular network has a number of advantages like increased capacity, reduced power usage, larger coverage area, reduced interference from other signals, etc.

FDMA & CDMA Systems: Frequency Division Multiple Access (FDMA) and **Code Division Multiple Access** (CDMA) were developed to distinguish signals from several different transmitters. In FDMA the transmitting and receiving frequency is used in each cell or different from the frequencies used in the neighbouring cells.

The principle of CDMA is more complex and the distributed transceivers can select one cell and listen to it. Other methods include **Polarisation Division Multiple Access** (PDMA) and **Time Division Multiple Access** (TDMA). Time division multiple access is used in combination with either FDMA or CDMA to give multiple channels within the coverage area of a single cell.

10. Video conferencing: A video conference is a live, visual connection between two or more people residing in separate locations for the purpose of communication.

- At its simplest video conferencing provides transmission of static images and text between two locations.
- At its more sophisticated, it provides transmission of full motion video images and high-quality audio between multiple locations.

In the business world, desktop video conferencing is a core component of unified communications, applications, and web conferencing services, while cloud-based virtual meeting room services enable organisations to deploy video conferencing with minimal infrastructure investment.

Required Components of Video Conferencing Systems

- A network for data transfers usually a high-speed broadband interconnection
- Two or more video cameras or webcams that provide video input.
- Two or more microphones.
- A computer screen, monitor, TV, or projector that can broadcast video output.
- Headphones, and laptop speakers for audio output.
- Hardware or software-based coding and decoding technology, called codex which can compress analog audio and video data into digital packages (packets) on the distributing end and then decompress the data at the endpoint.
- Acoustic echo cancellation (AEC) software which reduces audio release and supports real-time.

“When a video conference is held for informal purposes, it is called a video call or video chat”

Working of Video Conference: In this users can see each other, which allows them to develop stronger relationships.

There are a variety of ways video conferencing can be conducted. Individuals may use web cameras that are connected to or built-in to laptops, tablets, and computers. A software-based platform typically is used to transmit the communication over internet protocol.

Some businesses use dedicated video conferencing services that have been equipped with high-grade cameras and screens to ensure the conversation is clear and with limited technical. Third-party providers often install and assemble the hardware needed to conduct the video conference.

What is SMS?

SMS also known as short messaging service, commonly referred to as 'text messaging' is a service for sending short messages of up to **160 characters (224-character limit if using a five-bit mode)** to mobile devices, including cellular phones, smartphones, and tablets.

How does SMS work?

SMS is similar to paging. However, SMS messages do not require the mobile phone to be active and within range and will be held for several days until the phone is active and within range.

SMS messages are transmitted via mobile data over cellular networks starting with 2G to anyone with roaming services capability.

They can also be sent digitally in many other ways including the following:

1. From one Wi-Fi-enabled device to another.
2. From web-based applications within a Web browser.
3. From instant messaging clients.
4. From VoIP applications like Skype.
5. From some unified communications applications

Uses of SMS

1. Sending notifications from service centers to a customer.
2. Sending a notification of delivery by e-commerce platforms.
3. Sending a notification to a mobile phone owner of a voicemail message.
4. Sending promotional messages to cell phones as part of SMS marketing.
5. Sending a notification to subscribers about their plans.
6. Sending course as part of a multi-factor authentication platform.

The growth of SMS text messages also led to the development of ***Enhanced Messaging Services*** (EMS) and ***Multimedia Messaging Services*** (MMS).

EMS: Adaptation of SMS that allows users to send and receive ringtones and operator logos.

MMS: In this multimedia files are to be shared over a cellular network, including pictures and videos.

11. Telephone Answering Machine:

An answering machine is a device used for answering and recording a caller's message in the event that no one is available to answer the phone in person. Unlike voicemail, which serves the same functionality but is usually a network or a centralized system made available anywhere as a service, an answering machine is a local device that is attached to or directly incorporated into a physical landline telephone.

An answering machine is also known as the telephone answering device, telephone answering machine, answer phone or message machine.

Advantages:

- Turning new customers into loyal returning customers
- Never missing a call
- Not being sidetracked from more important things
- Diminishing the need for an in-house team
- Enhancing your company image
- Eliminating Challenges Associated with Hiring, Training, and Monitoring
- Call Recording

LIMITATIONS:

- 1 – It's impersonal. ...
- 2 – Most customers don't leave voicemails. ...
- 3 – Most callers won't call back. ...
- 4 – Voicemails are easy to miss. ...
- 5 – It can cost you more in the long run. ...
- 6 – You might not be able to understand the message. ...
- 7 – Your voicemail can stop working.