



# **Competency Based Learning Materials (CBLM)**

**IT Support Service**

**Level-3**

## **Module: Interpreting IT Support Services Fundamentals**

**Code: CBLM-OU-ICT-01-L3-V1**



**National Skills Development Authority  
Prime Minister's Office  
Government of the People's Republic of Bangladesh**



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This Competency Based Learning Materials (CBLM) on “Interpreting IT Support Services fundamental” under the IT Support Service, Level-3 qualification is developed based on the national competency standard approved by National Skills Development Authority (NSDA)

This document is to be used as a key reference point by the competency-based learning materials developers, teachers/trainers/assessors as a base on which to build instructional activities.

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This document has been developed by NSDA in association with industry representatives, academia, related specialist, trainer, and related employee.

Public and private institutions may use the information contained in this CBLM for activities benefitting Bangladesh.

## List of Abbreviations

CS	- Competency Standard
ISC	- Industry Skills Council
NSDA	- National Skills Development Authority
NSQF	- National Skills Qualifications Framework
BNQF	- Bangladesh National Qualifications Framework
OSH	- Occupational Safety and Health
PPE	- Personal Protective Equipment
SCVC	- Standards and Curriculum Validation Committee
STP	- Skills Training Provider
SOP	- Standard Operating Procedure
UoC	- Unit of Competency
EC	- Executive Committee
CBT&A	- Competency based Training & Assessment
CBC	- Competency based Curriculum
CAD	- Course Accreditation Document
CBLM	- Competency Based Learning Materials

## How to use this Competency Based Learning Materials (CBLMs)

The module, interpreting IT Support Services fundamental contains training materials and activities for you to complete. These activities may be completed as part of structured classroom activities or you may be required you to work at your own pace. These activities will ask you to complete associated learning and practice activities in order to gain knowledge and skills you need to achieve the learning outcomes.

1. Review the **Learning Activity** page to understand the sequence of learning activities you will undergo. This page will serve as your road map towards the achievement of competence.
2. Read the **Information Sheets**. This will give you an understanding of the jobs or tasks you are going to learn how to do. Once you have finished reading the **Information Sheets** complete the questions in the **Self-Check**.
3. **Self-Checks** are found after each **Information Sheet**. **Self-Checks** are designed to help you know how you are progressing. If you are unable to answer the questions in the **Self-Check** you will need to re-read the relevant **Information Sheet**. Once you have completed all the questions check your answers by reading the relevant **Answer Keys** found at the end of this module.
4. Next move on to the **Job Sheets**. **Job Sheets** provide detailed information about *how to do the job* you are being trained in. Some **Job Sheets** will also have a series of **Activity Sheets**. These sheets have been designed to introduce you to the job step by step. This is where you will apply the new knowledge you gained by reading the Information Sheets. This is your opportunity to practice the job. You may need to practice the job or activity several times before you become competent.
5. Specification **sheets**, specifying the details of the job to be performed will be provided where appropriate.
6. A review of competency is provided on the last page to help remind if all the required assessment criteria have been met. This record is for your own information and guidance and is not an official record of competency

When working through this Module always be aware of your safety and the safety of others in the training room. Should you require assistance or clarification please consult your trainer or facilitator.

When you have satisfactorily completed all the Jobs and/or Activities outlined in this module, an assessment event will be scheduled to assess if you have achieved competency in the specified learning outcomes. You will then be ready to move onto the next Unit of Competency or Module



Approved by \_\_\_ th Authority Meeting of NSDA Held on -----



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## MODULE CONTENT

<b>Unit of Competency</b>	<b>Interpret IT Support Services Fundamental</b>
<b>Unit Code</b>	<b>OU-ICT-ITSS-01-L3-V1</b>
<b>Module Title</b>	<b>Applying Interpreting IT Support Services Fundamental</b>
<b>Module Descriptor</b>	This module discusses the aspects that must be given attention when Interpreting IT Support Services Fundamental. It shows the knowledge and skills requirements interpreting concepts of IT support services, interpreting IT devices and infrastructure, interpreting problem solving method in IT system and interpreting customer support services in IT system.
<b>Nominal Hours</b>	20 Hours
<b>Lerning Outcome</b>	After completion of this module the trainees must be able to: <ol style="list-style-type: none"> <li>1. Interpret concepts of IT support services</li> <li>2. Interpret IT devices and infrastructure</li> <li>3. Interpret problem solving method in IT system</li> <li>4. Interpret customer support services in IT system</li> </ol>

### Assessment Criteria:

1. Information Technology is defined
2. IT support is defined
3. Career path of IT Support specialist is identified
4. Computer architecture overview is interpreted
5. Working Area of IT support service is determined
6. Types of IT support services identified
7. Units of data is identified
8. IT devices are interpreted
9. IT infrastructure is stated
10. End User support is defined
11. Surveillance and security system are defined
12. IT system problems are identified and defined
13. Solutions of identified problem are determined
14. Alternative solutions are determined
15. Solutions are evaluated
16. Solution is implemented and follow-up on the solutions is performed.
17. Customer support services is interpreted
18. Customer point of view is determined
19. Customer issues is identified
20. Solution is found
21. Solutions/ services is delivered.

## **Learning Outcome 1: Interpret concepts of IT support services**

### **Assessment Criteria:**

1. Information Technology is defined
2. IT support is defined
3. Career path of IT Support specialist is identified
4. Computer architecture overview is interpreted
5. Working Area of IT support service is determined

### **Content:**

1. Information Technology
2. IT support
3. Career path of IT Support specialist
4. Computer architecture overview
5. Working Area of IT support service

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

- Handouts or reference materials/books/ CBLMs on the above stated contents
- PCs/printers or laptop/printer with internet access
- Digital projector and Screen
- Bond paper
- Ball pens/pencils and other office supplies and materials
- Relevant learning materials
- Workplace or simulated environment

### **Methodologies**

- Lecture/discussion
- Demonstration/application
- Presentation
- Blended delivery methods

### **Assessment Methods**

- Written test
- Demonstration
- Observation with checklist
- Oral questioning
- Portfolio

## Learning Experience 1: Interpret concepts of IT support services

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

<b>Learning Steps</b>	<b>Resources specific instructions</b>
1. Trainee will ask the instructor about concepts of IT support services	1. Instructor will provide the learning materials “Interpreting IT Support Services Fundamentals”
2. Read the Information sheet/s	2. Information Sheet No: 1 Setup work environment
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No: 1 Concepts of IT support services Answer key No. 1 Concepts of IT support services
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No: 1- Concepts of IT support services Specification Sheet 1 – Concepts of IT support services

# Information Sheet 1: Concepts of IT support services

**Learning Objectives:** After completion of this information sheet, the learners will be able to:

- 1.1 Define Information Technology
- 1.2 Define IT support
- 1.3 Identify career path of IT Support specialist
- 1.4 Interpret Computer architecture overview
- 1.5 Determine working Area of IT support service

## 1.1 Information Technology

Information Technology (IT) refers to the use of computers, software, networks, and other digital technologies to store, retrieve, transmit, and manipulate data in various forms for the purpose of solving problems, enhancing productivity, and facilitating communication. IT encompasses a wide range of technologies and processes that enable the management and processing of information, including hardware (such as computers, servers, and networking devices), software applications (including operating systems, productivity suites, and specialized software), data management and storage systems, telecommunications infrastructure, and internet-based technologies.

In broader terms, Information Technology encompasses the entire ecosystem involved in the collection, processing, storage, and dissemination of data and information. It includes not only the hardware and software components but also the people, processes, and procedures involved in utilizing these technologies to achieve specific goals within an organization or society at large.

## 1.2 IT support

IT support, also known as technical support or helpdesk support, refers to the range of services provided to individuals or organizations to help them with the setup, maintenance, troubleshooting, and optimization of their information technology (IT) systems and infrastructure. The primary goal of IT support is to ensure that users can effectively utilize technology resources to perform their tasks and achieve their objectives.

### **IT support include:**

**Troubleshooting:** IT support professionals diagnose and resolve technical issues that users encounter with hardware, software, networks, and other IT systems. This may involve identifying the root cause of problems, providing immediate solutions, and implementing preventive measures to avoid recurrence.

**Hardware and Software Installation:** IT support personnel assist with the installation, configuration, and setup of computer hardware, peripherals, operating systems, software applications, and other IT-related equipment or tools.

**System Maintenance:** Regular maintenance tasks, such as software updates, security patches, hardware upgrades, and system backups, are performed by IT support teams to ensure the smooth and efficient operation of IT systems.

**User Training and Assistance:** IT support professionals provide training and guidance to users on how to use IT resources effectively, troubleshoot common issues independently, and adhere to security policies and best practices.

**Remote Support:** Many IT support services offer remote assistance, allowing support staff to troubleshoot and resolve issues remotely by accessing users' computers or devices over a network connection.

**Documentation and Knowledge Management:** IT support teams maintain documentation, knowledge bases, and FAQs to capture solutions to common problems, troubleshooting procedures, and best practices for future reference.

**Customer Service:** Effective communication and customer service skills are essential for IT support personnel to interact professionally with users, understand their needs, and provide timely and satisfactory resolutions to their IT-related concerns.

### 1.3 The career path of an IT Support Specialist

The career path of an IT Support Specialist typically involves several stages of professional growth and development, which may vary based on individual interests, skills, education, and industry demands. Below is a general outline of the typical career progression for an IT Support Specialist:

**Entry-Level Positions:** IT Support Technician / Help Desk Technician: This is often the starting point for individuals entering the field. Responsibilities may include providing technical assistance to users, troubleshooting hardware and software issues, and documenting support activities.

**Desktop Support Specialist:** Focuses on providing technical support for end-user computing devices such as desktop computers, laptops, and mobile devices. Duties may include hardware and software installation, configuration, and troubleshooting.

**Mid-Level Positions:** Systems Administrator: Involves managing and maintaining IT infrastructure, including servers, networks, and operating systems. Responsibilities may

include system monitoring, performance optimization, security management, and implementing backup and disaster recovery solutions.

**Network Administrator:** Specializes in designing, implementing, and managing computer networks. Tasks may include configuring routers and switches, managing network security, troubleshooting network issues, and optimizing network performance.

**Senior-Level Positions:** IT Support Manager / IT Supervisor: Involves overseeing a team of IT support professionals, managing support operations, setting service standards, and ensuring timely resolution of IT issues. Leadership, communication, and project management skills are crucial at this level.

**Systems Engineer:** Focuses on designing, implementing, and maintaining complex IT systems and infrastructure. Responsibilities may include architectural design, capacity planning, system integration, and implementing new technologies.

**Specializations and Advanced Roles:** Cloud Administrator: Manages cloud computing environments, including cloud-based infrastructure, platforms, and services. Skills in cloud platforms like AWS, Azure, or Google Cloud Platform are essential.

**Security Analyst / Information Security Specialist:** Specializes in protecting IT systems and data from cyber threats. Responsibilities may include monitoring for security incidents, implementing security measures, and conducting vulnerability assessments and penetration testing.

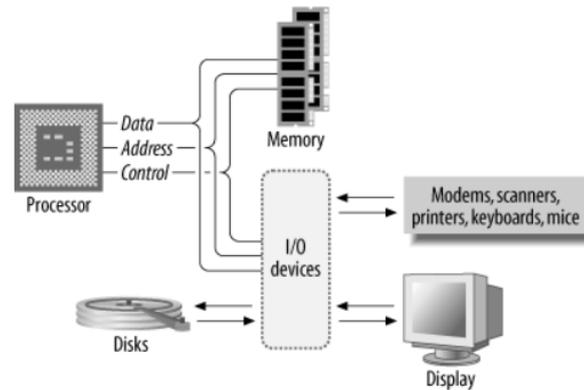
**IT Consultant:** Provides expert advice and guidance to organizations on IT strategy, technology adoption, and infrastructure optimization. Consultants may work independently or as part of consulting firms.

**Leadership and Management Roles:** IT Director / Chief Information Officer (CIO): Holds strategic responsibility for an organization's overall IT strategy, governance, and technology investments. This role involves aligning IT initiatives with business objectives and driving innovation.

**Chief Technology Officer (CTO):** Focuses on the development and implementation of technology strategies to support the organization's long-term growth and innovation goals.

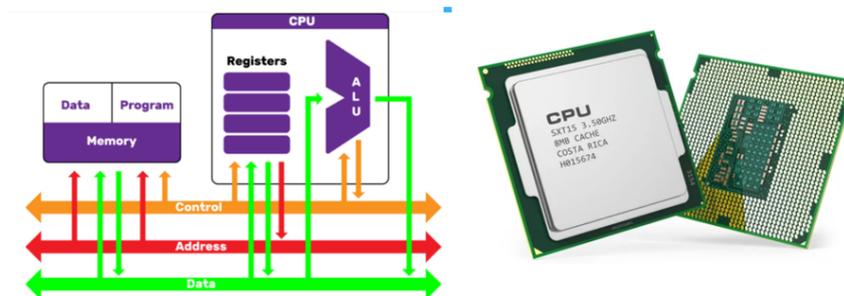
## 1.4 Computer architecture

Computer architecture refers to the structure and organization of a computer system, encompassing its hardware components, instruction sets, memory systems, and input/output mechanisms. It defines how these elements interact and work together to execute programs and process data efficiently.



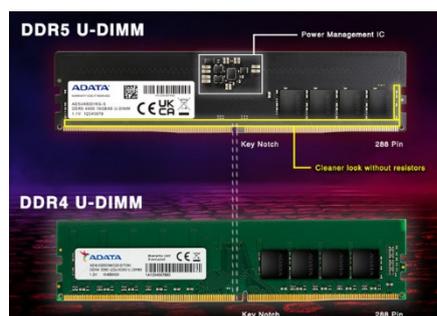
### Components of Computer Architecture:

**Central Processing Unit (CPU):** Often referred to as the brain of the computer, the CPU executes instructions stored in memory, performs arithmetic and logic operations, and manages data movement between different components.



### Memory (RAM):

Random Access Memory (RAM) provides temporary storage for data and instructions that the CPU needs to access quickly during program execution. It holds both program instructions and data being processed.



### Storage Devices:

Hard disk drives (HDDs), solid-state drives (SSDs), and other storage devices store data persistently, even when the computer is turned off. They hold the operating system, applications, files, and other user data.

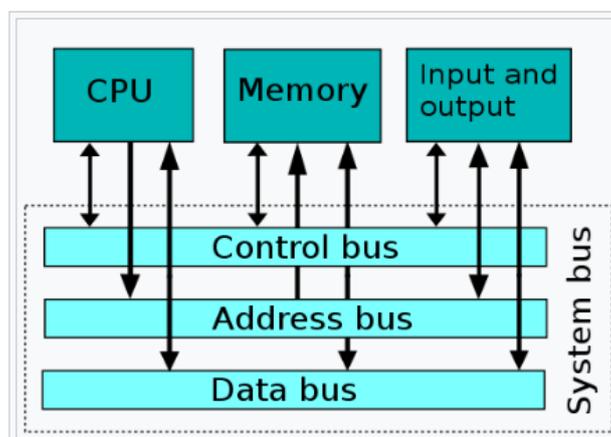


### Input/Output Devices:

These include keyboards, mice, monitors, printers, network interfaces, and other peripherals that enable users to interact with the computer system and exchange data with the outside world.



**System Bus:** A system bus is a single computer bus that connects the major components of a computer system, combining the functions of a data bus to carry information, an address bus to determine where it should be sent or read from, and a control bus to determine its operation. The technique was developed to reduce costs and improve modularity, and although popular in the 1970s and 1980s, more modern computers use a variety of separate buses adapted to more specific needs.



## 1.5 The working area of IT support service

The working area of IT support service encompasses a broad range of responsibilities and activities aimed at providing assistance and resolving technical issues related to information technology within an organization or for individual users.

### **Help Desk Support:**

- Acts as the first point of contact for users experiencing technical difficulties.
- Troubleshoots common issues related to hardware, software, network connectivity, and user accounts.
- Provides technical guidance and solutions over the phone, email, or chat.
- Logs and documents support interactions for future reference.

### **Desktop Support:**

- Focuses on issues related to individual workstations and user devices (desktops, laptops, tablets).
- Installs, configures, and maintains hardware and software on user devices.
- Assists with user account management, password resets, and application access.
- May provide on-site support for resolving hardware or software problems.

### **Network Support:**

- Maintains and troubleshoots computer networks, ensuring smooth communication and data flow.
- Manages network devices like routers, switches, and firewalls.
- Monitors network performance and identifies potential issues.
- Implements network security measures to protect against cyber threats.

### **Server Support:**

- Deals with the installation, configuration, and maintenance of servers that store and manage critical data and applications.
- Ensures server uptime, performance, and security.
- Backs up and recovers server data in case of emergencies.
- May specialize in specific server operating systems (e.g., Windows Server, Linux).

### **Security Support:**

- Focuses on safeguarding IT systems and data from cyberattacks.
- Implements and maintains security measures like firewalls, intrusion detection systems, and antivirus software.
- Educates users on cybersecurity best practices like creating strong passwords and avoiding phishing attacks.
- Responds to security incidents and helps mitigate potential damage.

## **Self-Check Sheet 1: Concepts of IT Support Services**

Question 01: What is Information Technology (IT)?

Answer:

Question 02: What are the key components of IT infrastructure?

Answer

Question 03: What is the difference between hardware and software in IT?

Answer

Question 04: What is the role of a network administrator in IT?

Answer

Question 05: What is the purpose of data backup in IT?

Answer

## **Answer Key 1: Concepts of IT support services**

Question: What is Information Technology (IT)?

Answer: Information Technology (IT) refers to the use of computers, software, networks, and other digital technologies to store, retrieve, transmit, and manipulate data for various purposes such as communication, problem-solving, and decision-making.

Question: What are the key components of IT infrastructure?

Answer: The key components of IT infrastructure include hardware (e.g., computers, servers, networking devices), software applications, data management systems, telecommunications infrastructure, and human resources (e.g., IT professionals, end-users).

Question: What is the difference between hardware and software in IT?

Answer: Hardware refers to the physical components of a computer system, such as the central processing unit (CPU), memory, storage devices, and peripherals. Software, on the other hand, comprises programs, applications, and operating systems that enable users to perform tasks and interact with hardware.

Question: What is the role of a network administrator in IT?

Answer: A network administrator is responsible for designing, implementing, and maintaining computer networks within an organization. Their duties include configuring network devices, ensuring network security, troubleshooting connectivity issues, and optimizing network performance.

Question: What is the purpose of data backup in IT?

Answer: Data backup is the process of creating copies of data to protect against loss or corruption. The primary purpose of data backup in IT is to ensure data availability and recovery in the event of accidental deletion, hardware failure, malware attacks, or other unforeseen incidents.

## Activity Sheet 1.1:

<b>Activity Sheet 1.0: Prepare Career Path of an IT Support Specialist</b>
<b>Title: Career Path of an IT Support Specialist</b>
<b>Performance Objective:</b> At the end of this task, the trainee should be able to understand the career path of an IT Support Specialist and identify steps for skill development and advancement in the field.
<ol style="list-style-type: none"><li>1. Explore the role of an IT Support Specialist, including responsibilities, required skills, and typical career progression.</li><li>2. Understand the importance of IT support in organizations and industries.</li><li>3. Evaluate your current skills, knowledge, and experience related to IT support.</li><li>4. Identify strengths and areas for improvement.</li><li>5. Enhance technical skills in areas such as hardware troubleshooting, software installation, network configuration, and operating system support.</li><li>6. Practice using IT support tools and software commonly used in the industry.</li><li>7. Develop strong communication skills, both verbal and written, to effectively communicate with end-users, colleagues, and stakeholders.</li><li>8. Practice explaining technical concepts in non-technical terms and providing clear instructions.</li><li>9. Define short-term and long-term career goals as an IT Support Specialist.</li><li>10. Consider potential career advancements, such as moving into management roles, specializing in specific areas (e.g., cybersecurity, cloud computing), or transitioning to related fields.</li></ol>

## Specification Sheet 1.1

### **A. Tools and Materials required**

- Notebook
- Handbook
- Office Stationeries
- List of available learning resources

### **B. Equipment**

- Laptop/Computer with Internet connection

## **Learning Outcome 2: Interpret IT devices and infrastructure**

### **Assessment Criteria:**

- 2.1 Types of IT support services identified
- 2.2 Units of data is identified
- 2.3 IT devices are interpreted
- 2.4 IT infrastructure is stated
- 2.5 End User support is defined
- 2.6 Surveillance and security system are defined.

### **Content:**

1. Types of IT support services
2. Units of data
3. IT devices
  - Computer, all accessories, all peripherals
  - Networking device
  - Communication devices
  - Surveillance and Security System
4. IT infrastructure
  - Software development company
  - Data center, ISP
  - Call center help desk service
  - Cloud service and cyber security
  - Hardware support center
  - Data backup and recovery center
4. End User support
  - Hardware support
  - Software support
  - Network support
5. Surveillance and security system

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

- Handouts or reference materials/books/ CBLMs on the above stated contents
- PCs/printers or laptop/printer with internet access
- Digital projector and Screen
- Bond paper
- Ball pens/pencils and other office supplies and materials
- Relevant learning materials
- Workplace or simulated environment

## **Methodologies**

- Lecture/discussion
- Demonstration/application
- Presentation
- Blended delivery methods

## **Assessment Methods**

- Written test
- Demonstration
- Observation with checklist
- Oral questioning
- Portfolio

## Learning Experience 2: IT devices and infrastructure

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

<b>Learning Steps</b>	<b>Resources specific instructions</b>
1. Student will ask the instructor about IT devices and infrastructure.	1. Instructor will provide the learning materials “Interpreting IT Support Services Fundamentals”
2. Read the Information sheet/s	2. Information Sheet No: 2 IT devices and infrastructure
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No: 2 - IT devices and infrastructure Answer key No. 2 - IT devices and infrastructure
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No: 2 - IT devices and infrastructure Specification Sheet: 2- IT devices and infrastructure

## Information Sheet 2: IT devices and infrastructure

**Learning Objectives:** After completion of this information sheet, the learners will be able to:

- 1.1 Identify types of IT support services
- 1.2 Identify units of data
- 1.3 Interpret IT devices
- 1.4 State IT infrastructure
- 1.5 Define end user support
- 1.6 Define surveillance and security system.

### 1.1 Types of IT support services

IT support services encompass a wide range of offerings designed to address various technical needs and challenges within organizations and among individual users. These services aim to ensure the efficient operation of IT systems, enhance user productivity, and resolve technical issues promptly.

#### **Help Desk Support:**

Help desk support involves providing assistance to end-users who encounter technical issues with hardware, software, or IT services. Support is typically provided through various channels such as phone, email, chat, or ticketing systems.

#### **Hardware Support:**

Hardware support includes diagnosing and resolving issues related to computer hardware components such as desktops, laptops, servers, printers, scanners, and peripherals. This may involve troubleshooting hardware failures, upgrading components, and performing preventive maintenance.

#### **Software Support:**

Software support focuses on assisting users with software-related issues, including installation, configuration, troubleshooting, and updates. IT support teams help users navigate software applications, resolve errors, and optimize performance.

#### **Network Support:**

Network support services involve managing and maintaining computer networks, including wired and wireless infrastructure. This includes configuring routers, switches, firewalls, and access points, as well as troubleshooting network connectivity issues and optimizing network performance.

#### **Operating System Support:**

Operating system support encompasses assisting users with operating system-related issues such as installation, configuration, troubleshooting, and updates. IT support professionals help users navigate operating system interfaces, resolve system errors, and optimize settings.

#### **Security Support:**

Security support involves implementing and managing security measures to protect IT systems and data from unauthorized **access**, malware, and other cyber threats. This includes deploying security software, configuring firewalls, conducting security audits, and responding to security incidents.

#### **Data Backup and Recovery:**

Data backup and recovery services ensure the protection and availability of critical data. IT support teams set up backup systems, schedule regular backups, monitor backup processes, and facilitate data recovery in the event of data loss or corruption.

#### **Remote Support:**

Remote support services allow IT support personnel to troubleshoot and resolve technical issues remotely, without the need for physical presence. Remote access tools and software are used to connect to users' devices and provide assistance efficiently.

#### **Cloud Support:**

Cloud support services involve managing cloud computing environments, including cloud-based infrastructure, platforms, and services. This includes configuring cloud resources, monitoring performance, ensuring security compliance, and providing support to users of cloud-based applications.

### **Units of data**

Units of data are standardized measures used to quantify and represent the amount of information stored or transmitted electronically. These units are essential in computer science, data storage, and communication systems. Here are some common units of data:

- **Bit (b):** The smallest unit of data in computing, representing a binary digit with a value of either 0 or 1. It is the fundamental building block of digital information and is used to represent the state of a single binary digit.
- **Byte (B):** A byte is a group of 8 bits. It is the basic unit of data storage and processing in most computer systems. Bytes are used to represent characters, numbers, and other types of data.
- **Kilobyte (KB):** Equal to 1,024 bytes or  $2^{10}$  bytes. Kilobytes are commonly used to measure the size of small files, documents, or computer programs.
- **Megabyte (MB):** Equal to 1,024 kilobytes or  $2^{20}$  bytes. Megabytes are used to measure the size of larger files, such as high-resolution images, audio files, or short videos.
- **Gigabyte (GB):** Equal to 1,024 megabytes or  $2^{30}$  bytes. Gigabytes are commonly used to measure the capacity of storage devices, such as hard drives, solid-state drives, and flash drives.
- **Terabyte (TB):** Equal to 1,024 gigabytes or  $2^{40}$  bytes. Terabytes are used to measure large amounts of data, such as the capacity of enterprise storage systems, cloud storage, and data centers.
- **Petabyte (PB):** Equal to 1,024 terabytes or  $2^{50}$  bytes. Petabytes are used to measure extremely large datasets, such as those found in big data analytics, scientific research, and archival storage.

- **Exabyte (EB):** Equal to 1,024 petabytes or  $2^{60}$  bytes. Exabytes are used to measure data on a massive scale, such as global internet traffic, large-scale data centers, and long-term storage repositories.
- **Zettabyte (ZB):** Equal to 1,024 exabytes or  $2^{70}$  bytes. Zettabytes are used to represent enormous amounts of data, such as the total volume of data generated and stored worldwide.
- **Yottabyte (YB):** Equal to 1,024 zettabytes or  $2^{80}$  bytes. Yottabytes are theoretical units used to describe the largest possible amount of data, exceeding the storage capacity of current technology.

## 1.2 IT devices

An IT device, in the context of information technology, refers to any electronic equipment that interacts with, processes, or stores information. These devices are essential components of a computer system and play a crucial role in various computing tasks.

### Input Devices:

These devices allow users to provide data and control signals to a computer.

**Keyboard:** A keyboard is primarily used as an input device. With a keyboard, one may play games, access menus, compose documents, use keystroke shortcuts, and perform several other functions. Keyboards can have a range of keys, depending on the manufacturer, the operating system they are designed for, and whether they are connected to a desktop computer or are a part of a laptop.



**Mouse:** Used to navigate the graphical user interface (GUI) and select items on the screen.



**Scanner:** Converts physical documents into digital images.



**Webcam:** Captures live video and images.



**Microphone:** Records audio input for voice recognition or communication.



## **Output Devices:**

These devices receive data from a computer and present it in a human-readable format.

**Monitor:** Displays visual information on the screen.



**Printer:** Creates physical copies of documents or images on paper.



**Speakers:** Produce sound output for audio listening.



**Projector:** Projects visual information onto a larger screen or surface.



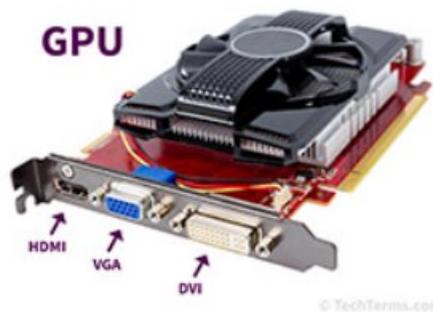
### **Processing Devices:**

These devices are the core of a computer system and perform the essential tasks of data processing, calculations, and program execution.

**Central Processing Unit (CPU):** The brain of the computer, responsible for executing instructions and performing calculations.



**Graphics Processing Unit (GPU):** Handles graphics processing tasks for displaying visuals on the screen.



### **Storage Devices:**

These devices store data and instructions for later use.

**Hard Disk Drive (HDD):** Provides permanent data storage with high capacity.



**Solid State Drive (SSD):** Offers faster data access times compared to HDDs but typically has lower storage capacity.



**USB flash drive:** Portable storage device for transferring data between computers.



**Optical media (CD, DVD, Blu-ray):** Provides optical storage for data backup or archiving.



### **Peripheral Devices:**

These devices are additional components that expand the functionality of a computer system beyond basic input, output, and processing.

Examples include:

Mouse, Keyboard, Webcam, Microphone, Monitor, Speakers, Projector, Projector.

### **Networking Devices:**

Networking devices facilitate communication and data exchange between computers and other devices within a network. Common networking devices include routers, switches, hubs, modems, access points, and network interface cards (NICs). Routers manage traffic between different networks, while switches and hubs facilitate communication within a local network. Modems connect networks to the internet, and access points enable wireless connectivity.

### Repeater:

- Operates at the physical layer.
- Regenerates signals to extend their transmission distance within the same network.
- Copies and regenerates weak signals bit by bit.
- Typically, a 2-port device.

### Hub:

- Essentially a multi-port repeater.
- Connects multiple wires from different branches (e.g., star topology).
- Cannot filter data, so it sends data packets to all connected devices.
- Collision domain remains one for all hosts connected through a hub.

### Types of hubs:

- Active Hub: Has its power supply, cleans, boosts, and relays signals. Used to extend maximum distance between nodes.
- Passive Hub: Collects wiring from nodes and power supply from an active hub. Relays signals without cleaning or boosting.
- Intelligent Hub: Includes remote management capabilities and flexible data rates.

### Bridge

- Operates at the data link layer.
- Combines repeater functionality with content filtering based on MAC addresses.
- Interconnects two LANs working on the same protocol.
- Single input and single output port (a 2-port device).
- Types of bridges:
  - Transparent Bridges: Stations are unaware of the bridge's existence. No reconfiguration needed when adding or deleting bridges.
  - Source Routing Bridges: Source station performs routing, and the frame specifies the route to follow.

### Switch

- A multiport bridge.
- Operates at the data link layer.
- Efficiently forwards data based on MAC addresses.
- Creates separate collision domains for each port.
- Commonly used in LANs.



**Router:** Manages data traffic within a network

- Operates at the network layer.
- Routes data between different networks (e.g., LANs, WANs).
- Determines optimal paths for data packets.
- Uses IP addresses for routing decisions.



**Gateway:**

- Acts as a protocol converter.
- Connects networks with different communication protocols.
- Translates data between different formats.
- Examples include email gateways and web gateways.



**Servers:**

Servers are specialized computers that provide resources and services to other computers and devices within a network. They can serve various purposes, such as hosting websites, storing and sharing files, managing network traffic, running applications, and providing email services. Servers come in different types, including web servers, file servers, database servers, email servers, and application servers.

**Cloud Computing:**

Cloud computing refers to the hardware and software components that enable cloud computing services, such as virtualized servers, storage resources, networking infrastructure, and management tools. Cloud computing providers deploy and manage vast data centers housing servers, storage arrays, and networking equipment to deliver scalable, on-demand computing resources over the internet.

**Communication Device**

**Network Interface Card (NIC):** Enables a computer to connect to a network.

- An essential component for network communication.
- Installed in computers to connect them to wired networks (e.g., Ethernet).
- Provides a physical interface for data transmission.



**Modem:** Modulates and demodulates signals for internet connectivity.

- A classic example of a communication device.
- Converts a computer's digital information into an analog signal for transmission over a telephone line.
- Performs modulation (converting digital to analog) and demodulation (converting analog back to digital).
- Allows computers to connect to the internet via dial-up connections.



### **Wi-Fi Devices:**

- Includes Wi-Fi routers, access points, and wireless adapters.
- Facilitates wireless communication within local area networks (LANs).
- Allows devices to connect wirelessly to the internet or other devices.

### **Bluetooth Devices:**

- Enables short-range wireless communication between devices (e.g., smartphones, headphones, keyboards).
- Commonly used for file sharing, audio streaming, and peripheral connectivity.

### **Infrared Devices:**

- Use infrared light for communication.
- Often found in remote controls, printers, and some older mobile phones.
- Limited range and line-of-sight communication.

### **Smartphones:**

- Combines various communication technologies (cellular, Wi-Fi, Bluetooth, etc.).
- Allows voice calls, messaging, internet browsing, and app-based communication.

### **Surveillance and Security System**

Surveillance refers to the monitoring of behavior, activities, or information for the purpose of information gathering, influencing, managing, or directing. It can involve observing from a distance using electronic equipment (such as closed-circuit television or CCTV) or intercepting electronically transmitted information (like internet traffic). Surveillance is used by citizens to protect their neighborhoods, by governments for intelligence gathering, crime prevention, and investigations, and even by businesses to gather intelligence on competitors, suppliers, or customers



On the other hand, a security system encompasses various components designed to enhance security and protect people, property, or assets. Let's break it down:

#### **Security Cameras:**

- These cameras monitor specific areas, capturing video footage.
- They can be part of a larger security system.
- Examples include indoor and outdoor cameras, doorbell cameras, and motion-activated cameras.

#### **Surveillance Systems:**

- A surveillance system is an interconnected web of cameras.
- It includes multiple security cameras working together.
- Surveillance systems can be part of a broader security setup.
- Components include cameras, recording devices (DVR or NVR), and monitoring/display systems

### **1.3 IT infrastructure**

IT infrastructure, also sometimes called technology infrastructure, refers to the combined hardware, software, network resources, and facilities that enable the operation and delivery of IT services within an organization. It's essentially the foundation upon which all IT functions rely. Here's a breakdown of the key components of IT infrastructure:

#### **Software development company**

A software development company as part of IT infrastructure can be described as a vital **component** that focuses on creating, maintaining, and evolving software applications. In the context of IT infrastructure, it serves as the backbone for various digital operations within an organization.

#### **Data Center**

A data center is a physical room, building, or facility that houses IT infrastructure for building, running, and delivering applications and services.

Data centers have evolved from privately-owned, on-premises facilities to remote facilities owned by cloud service providers.

**Enterprise (On-Premises) Data Centers:** Host all IT infrastructure and data on-premises. Companies choose this for control over information security and compliance<sup>1</sup>.

**Public Cloud Data Centers:** Run by major cloud providers (e.g., AWS, Google Cloud, Microsoft Azure). They offer shared IT infrastructure for multiple customers via the internet.

#### **Internet Service Provider (ISP)**

An ISP is any company that provides internet access to consumers and businesses. ISPs offer various channels for internet access, including cable, DSL, fiber optics, dial-up, and wireless.

Services provided by ISPs include web access, email, domain registration, web hosting, and browser packages.

ISPs play a crucial role in connecting users to the web, enabling online activities, and facilitating communication

### **Call Center:**

- A call center refers to a centralized department or facility that handles a large volume of incoming and outgoing customer calls.
- Its primary purpose is to provide customer support, resolve inquiries, handle complaints, and offer product or service information.
- Call centers can be internal to a company or outsourced to specialized service providers.
- They play an integral role in creating a great customer experience by efficiently managing interactions via phone calls and other communication channels.

### **Help Desk:**

A help desk is a centralized team within a company that serves employees or customers, using a software product to organize conversations.

Most often, the purpose of a help desk is IT support, either for external customers or internal customers (employees) needing technical assistance.

Some businesses broaden the term to include customer support, service, or advocacy teams. Help desks play a crucial role in providing timely and effective assistance to users, whether they face technical issues or need general support.

The difference between a help desk and a service desk lies in the focus and scope of their support functions. While a help desk primarily handles technical issues, a service desk serves end-users in a fast, personalized way.

Relevance to IT Infrastructure:

Both call centers and help desks are essential components of IT infrastructure:

Call centers handle customer inquiries, complaints, and support requests via phone calls and other channels.

Help desks provide technical assistance, troubleshoot IT-related problems, and ensure smooth operations for employees and customers.

## 1.4 End user support

End user support refers to the services provided to assist individuals who use technology products or services. These individuals are often referred to as "end users" because they are at the end of the technology usage chain. End user support aims to help them effectively utilize the technology and troubleshoot any problems they encounter.

### **Who Provides End User Support?**

**IT Help Desk:** A dedicated team within an organization's IT department that provides first-line support to users. They answer basic questions, troubleshoot common issues, and escalate complex problems to technical specialists.

**Technical Support Specialists:** These professionals have deeper technical expertise and handle more complex issues that the help desk cannot resolve.

**Manufacturer Support:** Some software or hardware manufacturers offer end-user support directly to their customers.

**Online Resources:** Many companies provide online resources such as knowledge bases, FAQs, and tutorials to help users troubleshoot problems independently.

**Technical Assistance:** Helping users install software, configure hardware, and troubleshoot technical problems.

**Answering Questions:** Providing answers to user inquiries about using the technology or its features.

**Problem Resolution:** Guiding users through troubleshooting steps to resolve technical issues they encounter.

**Training and Guidance:** Offering basic training or guidance on how to use the technology effectively.

**Password Reset:** Resetting forgotten passwords or helping users manage their login credentials.

### **Channels for End User Support:**

**Phone Support:** Users can call a help desk number to speak with a support representative directly.

**Email Support:** Users can submit email inquiries and receive troubleshooting assistance via email.

**Live Chat:** Organizations may offer real-time chat support where users can communicate with a support representative online.

**Self-Service Resources:** Online knowledge bases, FAQs, and tutorials allow users to find answers and troubleshoot problems independently.

### **Surveillance and security systems**

Surveillance and security systems are interrelated but distinct concepts. Here's a breakdown to understand the difference:

#### **1.5 Surveillance System:**

A surveillance system is a network of devices and methods used to monitor an area or activity. Its primary purpose is to gather information for observation, monitoring, or investigation.

#### **Components:**

Surveillance systems can include various components, such as:

**Security Cameras:** Capture video footage of an area.

**Audio Recording Devices:** Record audio conversations or ambient sounds.

**Access Control Systems:** Regulate entry and exit points.

**Monitoring Software:** Allows real-time or recorded footage review.

**Purpose:** Surveillance systems can be used for various purposes, including:

**Security:** Monitor for suspicious activity and deter crime.

**Loss Prevention:** Detect shoplifting or employee theft.

**Safety Monitoring:** Ensure the well-being of employees or residents in a particular area.

**Traffic Monitoring:** Manage traffic flow and identify congestion points.

**Security System:**

A security system is a combination of hardware and software designed to deter, detect, and respond to security threats. Its primary purpose is to prevent unauthorized access, theft, damage, or other security breaches.

**Components:**

Security systems can include various components, such as:

**Alarm Systems:** Trigger alerts upon detecting unauthorized entry, smoke, fire, or other security breaches.

**Sensors:** Detect movement, vibration, smoke, fire, or other security threats.

**Security Cameras:** May be integrated with security systems for visual verification of alarms.

**Access Control Systems:** Similar to surveillance systems, they regulate entry and exit points but with a focus on restricting access.

**Purpose: Security systems aim to:**

**Deter Crime:** The visible presence of security systems can dissuade potential criminals.

**Detect Threats:** Sensors and alarms can trigger alerts when a security breach occurs.

**Respond to Incidents:** Security systems may trigger automated responses like activating lights, locking doors, or sending alerts to security personnel.

**Examples:**

A bank might use security cameras for surveillance to monitor customer activity and a security system with alarms and access control to deter and prevent robberies.

A homeowner might install a home security system with motion detectors and sirens to deter burglars, while also using a security camera system to monitor their property remotely.

## **Self-Check Sheet 2: IT devices and infrastructure**

Question 01: What is an example of an input device?

Answer:

Question 02: What is the function of a central processing unit (CPU)?

Answer:

Question 03: What type of storage device offers faster access times but typically less storage capacity?

Answer:

Question 04: What is the role of a router in a network?

Answer:

Question 05: What is a common function of a firewall?

Answer:

## **Answer Key 2: IT devices and infrastructure**

Question 01: What is an example of an input device?

Answer: Keyboard (used for typing)

Question 02: What is the function of a central processing unit (CPU)?

Answer: It processes instructions and performs calculations (the brain of the computer).

Question 03: What type of storage device offers faster access times but typically less storage capacity?

Answer: Solid State Drive (SSD)

Question 04: What is the role of a router in a network?

Answer: It directs data traffic between different networks.

Question: What is a common function of a firewall?

Answer: It protects a computer system from unauthorized access.

## Task Sheet 2.1: Identify IT Devices and Infrastructure

TASK SHEET 2.1
<b>Title: Identify IT Devices and Infrastructure</b>
<b>Performance Objective:</b> At the end of this task, the trainee should be able to To gain practical experience and improve proficiency in working with IT devices and understanding IT infrastructure components and functions.
To finish the task perform following activity: <ol style="list-style-type: none"><li>1. Identify different types of IT devices commonly used in computing, communication, and data management.</li><li>2. List examples of hardware devices (e.g., computers, servers, networking equipment), software applications (e.g., operating systems, productivity tools), and peripherals (e.g., printers, scanners) used in IT environments.</li><li>3. explore the components of IT infrastructure, including hardware, software, networks, and facilities.</li><li>4. Identify key infrastructure components such as servers, storage devices, networking equipment, data centers, and cloud services.</li><li>5. Select one hardware device from your list (e.g., desktop computer, router, printer) and familiarize yourself with its specifications, features, and functionality.</li><li>6. Take note of important hardware components, interfaces, connectivity options, and troubleshooting procedures.</li></ol>
<b>A. Tools and Material required:</b> <ul style="list-style-type: none"><li>▪ Notebook</li><li>▪ Handbook</li><li>▪ Office Stationeries</li></ul> <b>B. Equipment:</b> <ul style="list-style-type: none"><li>▪ Laptop/Computer</li></ul>

## **Specification sheet 2.1: Identify IT Devices and Infrastructure**

### **A. Tools and Material required:**

- Notebook
- Handbook
- Office Stationeries

### **B. Equipment:**

- Laptop/Computer

## **Learning Outcome 3: Interpret problem solving method in IT system**

### **Assessment Criteria:**

1. IT system problems are identified and defined
2. Solutions of identified problem are determined
3. Alternative solutions are determined
4. Solutions are evaluated
5. Solution is implemented and follow-up on the solutions is performed

### **Content:**

1. IT system problems
2. Solutions of identified problem
3. Alternative solutions

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

- Handouts or reference materials/books/ CBLMs on the above stated contents
- PCs/printers or laptop/printer with internet access
- Digital projector and Screen
- Bond paper
- Ball pens/pencils and other office supplies and materials
- Relevant learning materials
- Workplace or simulated environment

### **Methodologies**

- Lecture/discussion
- Demonstration/application
- Presentation
- Blended delivery methods

### **Assessment Methods**

- Written test
- Demonstration
- Observation with checklist
- Oral questioning
- Portfolio

### Learning Experience 3: Problem Solving Method in IT System

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

Learning Steps	Resources specific instructions
1. Student will ask the instructor about problem solving method in IT system.	1. Instructor will provide the learning materials “Interpret IT Support Services Fundamentals”
2. Read the Information sheet/s	2. Information Sheet No 3: problem solving method in IT system
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No 3: problem solving method in IT system  Answer key No. 3: problem solving method in IT system
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No 3-1: problem solving method in IT system  Specification Sheet 3-1: problem solving method in IT system

## Information Sheet 3: problem solving method in IT system

### Learning Objectives:

After completion of this information sheet, the learners will be able to:

- 3.1 Identify and define IT system problems
- 3.2 Determine Solutions of identified problem
- 3.3 Alternative solutions are determined
- 3.4 Evaluate Solutions
- 3.5 Implement solution and Perform follow-up on the solutions

### 3.1 IT system problems

IT system problems refer to issues, faults, or disruptions that occur within information technology (IT) systems, affecting their functionality, performance, reliability, or security. These problems can arise from various sources, including hardware failures, software errors, network issues, security breaches, and human error. Addressing IT system problems promptly and effectively is crucial to minimize downtime, mitigate risks, and maintain the integrity and availability of IT services.

#### Hardware Problems:

- **Hardware Failure:** Physical malfunctioning of IT equipment like hard drive crashes, faulty memory, overheating components, or failing network devices.
- **Outdated Equipment:** Using outdated hardware that can be unreliable, incompatible with newer software, and less secure.

#### Software Problems:

- **Software Bugs:** Errors in the programming code that can cause crashes, unexpected behavior, or data corruption.
- **Software Incompatibility:** Compatibility issues between different software programs or versions, leading to errors or malfunctions.
- **Outdated Software:** Using outdated software that may no longer receive security updates, leaving systems vulnerable to cyberattacks.

#### Network Problems:

- **Network Outages:** Loss of internet connectivity or internal network connectivity issues that prevent users from accessing resources.
- **Slow Performance:** Network congestion, overloaded servers, or inefficient network configuration leading to slow loading times and sluggish applications.
- **Security Breaches:** Unauthorized access to a network or system by hackers, leading to data breaches, malware infections, or system disruptions.

### **Other IT System Problems:**

- **User Error:** Accidental mistakes by users can cause data loss, system crashes, or security vulnerabilities (e.g., clicking malicious links, downloading unauthorized software).
- **Power Outages:** Loss of electrical power can disrupt IT systems and cause data loss if proper backups are not in place.
- **Natural Disasters:** Floods, fires, or other natural disasters can damage IT infrastructure and cause significant data loss.

### **3.2 Determine Solutions of identified problem**

### **3.3 Alternative solutions are determined**

### **3.4 Evaluate Solutions**

### **3.5 Implement solution and Perform follow-up on the solutions**

### **Mitigating IT System Problems:**

Several measures can be taken to prevent or minimize IT system problems:

- **Regular Maintenance:** Perform preventive maintenance on hardware and software to identify and address potential issues.
- **Software Updates:** Install software updates promptly to patch security vulnerabilities and benefit from bug fixes.
- **Data Backups:** Implement a robust data backup and recovery plan to protect against data loss.
- **User Training:** Educate users on cybersecurity best practices and how to avoid common mistakes.
- **Security Measures:** Install firewalls, anti-virus software, and intrusion detection systems to protect against cyberattacks.
- **Disaster Recovery Plan:** Develop a plan to ensure business continuity in case of natural disasters or major outages.

## **Self-Check Sheet 3: problem solving method in IT system**

Question 01: What is a common symptom of a failing hard drive?

Answer:

Question 02: What can outdated software lead to?

Answer:

Question 03: What might cause a slow internet connection at the office?

Answer:

Question 04: What user error could lead to data loss?

Answer:

Question 05: How can regular software updates help prevent IT problems?

Answer:

Question 06: What is a benefit of data backups?

Answer:

Question 07: What is an example of an alternative solution to expensive software?

Answer:

Question 08: How can cloud computing be an alternative to on-premises IT infrastructure?

Answer:

### **Answer Key 3: Problem solving method in IT system**

**Question 01:** What is a common symptom of a failing hard drive?

Answer: Frequent computer crashes or slow data access times.

**Question 02:** What can outdated software lead to?

Answer: Security vulnerabilities and compatibility issues with newer programs.

**Question 03:** What might cause a slow internet connection at the office?

Answer: Network congestion from too many devices or outdated network equipment.

**Question 04:** What user error could lead to data loss?

Answer: Accidentally deleting important files or formatting a storage device without a backup.

**Question 05:** How can regular software updates help prevent IT problems?

Answer: They often patch security vulnerabilities and fix bugs in the software.

**Question 06:** What is a benefit of data backups?

Answer: They allow you to recover lost data in case of hardware failure or accidental deletion.

**Question 07:** What is an example of an alternative solution to expensive software?

Answer: Using a free and open-source software program with similar functionality.

**Question 08:** How can cloud computing be an alternative to on-premises IT infrastructure?

Answer: It eliminates the need for physical hardware and offers scalable resources delivered over the internet.

## Task Sheet 3.1: problem solving method in IT system

<b>Task Sheet 3.1: Identify IT system problems and solutions</b>
Scenario: You are the IT support specialist for a medium-sized retail store with 50 employees. They use a mix of desktop computers, barcode scanners, and point-of-sale (POS) systems for their daily operations.
<b>Performance Objective:</b> By the end of this task, the trainee should be able to:
<b>Identify Potential Problems:</b> <ol style="list-style-type: none"><li>1. Brainstorm a list of 10 potential IT system problems that the retail store could encounter.</li><li>2. Consider issues related to hardware, software, network, and security.</li></ol>
Troubleshooting Scenarios: <ol style="list-style-type: none"><li>1. Choose 3 of the problems you identified in task 1 and create a troubleshooting guide for each.</li><li>2. Each guide should include:</li><li>3. A description of the problem and its symptoms.</li><li>4. A step-by-step troubleshooting process to diagnose and potentially resolve the issue.</li><li>5. Information on when to escalate the problem to a more senior IT professional..</li></ol>
Alternative Solutions Research: <p>The store is considering replacing their aging desktop computers. Research two alternative solutions to purchasing new traditional desktop computers:</p> Option 1: Thin clients with a centralized virtual desktop infrastructure (VDI) solution. Option 2: Implementing a cloud-based point-of-sale system that eliminates the need for individual desktop computers at each register. Briefly summarize the pros and cons of each alternative solution compared to purchasing new desktops.
<b>Tools and Materials Required:</b>
<ul style="list-style-type: none"><li>• Internet access for sourcing information</li></ul>
<b>Equipment:</b>
<ul style="list-style-type: none"><li>• Laptop or Computer</li><li>• Internet Access</li></ul>

## **Learning Outcome 4: Interpret customer support services in IT system**

### **Assessment Criteria:**

1. Customer support services is interpreted
2. Customer point of view is determined
3. Customer issues is identified
4. Solution is found
5. Solutions/ services is delivered

### **Content:**

1. Customer support services
2. Customer point of view
3. Customer issues

### **Resources Required/ Conditions:**

The trainees must be provided with the following:

- Handouts or reference materials/books/ CBLMs on the above stated contents
- PCs/printers or laptop/printer with internet access
- Digital projector and Screen
- Bond paper
- Ball pens/pencils and other office supplies and materials
- Relevant learning materials
- Workplace or simulated environment

### **Methodologies**

- Lecture/discussion
- Demonstration/application
- Presentation
- Blended delivery methods

### **Assessment Methods**

- Written test
- Demonstration
- Observation with checklist
- Oral questioning
- Portfolio

## Learning Experience 4: Customer Support Services in IT System

In order to achieve the objectives stated in this learning guide, you must perform the learning steps below. Beside each step are the resources or special instructions you will use to accomplish the corresponding activity.

Learning Steps	Resources specific instructions
1. Student will ask the instructor about customer support services in IT system.	1. Instructor will provide the learning materials “ <b>Interpret IT Support Services Fundamentals</b> ”
2. Read the Information sheet/s	2. Information Sheet No: 4 Customer support services in IT system
3. Complete the Self Checks & Check answer sheets.	3. Self-Check/s Self-Check No: 4 Customer support services in IT system  Answer key No. 4 Customer support services in IT system
4. Read the Job Sheet and Specification Sheet and perform job	4. Job- Sheet No: 4 Customer support services in IT system  Specification Sheet: 4 Customer support services in IT system

## Information Sheet 4: Customer support services in IT system

### Learning Objectives:

After completion of this information sheet, the learners will be able to:

- 4.1 Interpret customer support services
- 4.2 Determine customer point of view
- 4.3 Identify customer issues
- 4.4 Find Solution
- 4.5 Eliver Solutions/ services

### 4.1 Customer support services

Customer support services play a crucial role within IT support, acting as the bridge between technical specialists and the end-users who rely on the technology. Here's a breakdown of how customer support functions in IT:

#### **Responsibilities of IT Customer Support:**

**Acting as the First Point of Contact:** Customer support representatives are often the first point of contact for users experiencing IT issues. They listen to user problems, diagnose basic issues, and attempt to resolve them independently.

**Technical Assistance:** They provide basic technical assistance to users, including:

Troubleshooting common software and hardware problems.

Answering questions about using IT systems and applications.

Resetting passwords or unlocking accounts.

Guiding users through self-service solutions like online knowledge bases or FAQs.

**Issue Escalation:** For complex problems beyond their expertise, IT customer support representatives escalate issues to appropriate technical specialists within the IT department.

**Communication and Documentation:** They clearly communicate the issue to the technical specialists, document the troubleshooting steps taken, and keep the user informed of the resolution progress.

**User Training:** Some customer support teams may also provide basic user training sessions or documentation to help users become more proficient with the technology.

### 4.2 Customer point of view

From a customer's point of view, their experience with a product or service is paramount. It's all about how the product or service fulfills their needs and wants, and how the company interacts with them throughout that process. Here's a deeper look at what matters most to customers:

#### **Customer Needs and Expectations:**

**Problem-solving:** Customers are looking for solutions to their problems. They want products or services that address their specific needs and make their lives easier.

**Value for money:** Customers expect to receive value for their money. This includes not just the price of the product or service, but also its quality, reliability, and overall benefits.

**Convenience and Ease of Use:** Customers want things to be simple and convenient. Products and services should be easy to understand, use, and access.

**Positive Interactions:** Customers appreciate positive interactions with the company. This includes helpful and friendly customer support, clear communication, and a willingness to address their concerns.

**Timeliness:** Customers don't want to wait excessively. They expect prompt responses to inquiries and efficient resolution of issues.

**Factors Affecting Customer Perception:**

**Product/Service Quality:** The overall quality and performance of the product or service significantly impacts customer satisfaction.

**Brand Reputation:** A company's reputation and brand image influence customer perception. Positive brand experiences lead to trust and loyalty.

**Marketing and Communication:** Clear and honest marketing materials, along with transparent communication, set expectations and build trust with customers.

**Customer Service:** The quality of customer service interactions significantly shapes customer perception. Helpful, knowledgeable, and efficient support fosters positive experiences.

**Price and Value:** Customers evaluate the price they pay in relation to the value they receive. Feeling they got a good deal enhances satisfaction.

Importance of Understanding the Customer Point of View:

By understanding what matters to customers, businesses can:

**Develop better products and services:** By focusing on customer needs and expectations, companies can create products and services that truly resonate with their target audience.

**Improve customer experience:** Understanding customer pain points and desired experiences allows businesses to tailor their interactions and offerings for maximum satisfaction.

**Increase customer loyalty:** Positive customer experiences foster loyalty and encourage repeat business. Customers who feel valued are more likely to become brand advocates.

**Gain a competitive edge:** In a crowded marketplace, understanding customer needs and exceeding expectations can differentiate a business from its competitors.

### 4.3 Customer issues

In the realm of IT support services, customer issues can encompass a variety of problems users encounter when interacting with technology and the support system designed to help them. Here's a breakdown of common customer issues in IT support:

**Technical Issues:**

**Hardware Problems:** Customers might experience issues like computer crashes, slow performance, faulty hardware components (printers, scanners etc.), or malfunctioning peripherals.

**Software Problems:** Difficulties can arise from bugs in software applications, compatibility issues between different programs, outdated software leading to security vulnerabilities, or software malfunctioning after updates.

**Network Problems:** Customers might face problems connecting to the internet, slow network speeds, connectivity drops, or difficulty accessing network resources (printers, servers).

**Security Concerns:** Customers may be worried about malware infections, phishing attempts, data breaches, or unauthorized access to their devices or accounts.

**Data Loss:** Accidental deletion of important files, corrupted data due to hardware failures, or lack of proper backups can cause significant issues for users.

#### **Usability Issues:**

**Complexity of Technology:** Customers may struggle with using complex software programs, unfamiliar interfaces, or lack the technical knowledge to navigate the technology effectively.

**Lack of Training:** Insufficient training materials or user guides can leave customers feeling lost and unable to utilize the technology's full potential.

**Unclear Error Messages:** Technical error messages might be cryptic and unhelpful, leaving users confused about the problem and how to fix it.

#### **Customer Service Issues:**

**Long Wait Times:** Customers experiencing IT problems often need prompt solutions. Long wait times on phone lines, emails, or live chat can lead to frustration and dissatisfaction.

**Unhelpful or Unknowledgeable Staff:** Interacting with support representatives who lack the technical expertise to resolve their issues effectively can be a major source of customer dissatisfaction.

**Inefficient Resolution Process:** Customers may find the troubleshooting process cumbersome or repetitive, requiring them to repeat information or go through unnecessary steps.

**Poor Communication:** Lack of clear communication about the status of their IT issue, updates on the troubleshooting process, or potential resolution timelines can leave users feeling uninformed and frustrated.

## **Self-Check Sheet 4: Customer support services in IT system**

1. What is the primary role of customer support in IT services?
2. What are some common channels for IT customer support?
3. What is the benefit of clear communication in IT customer support?
4. What is an advantage of offering self-service resources for IT customer support?
5. What is a potential drawback of long wait times for IT customer support?
6. How can helpful and knowledgeable IT support representatives improve customer satisfaction?
7. What is an example of a situation where an IT customer support representative might escalate an issue?
8. How can documenting troubleshooting steps be helpful in IT customer support?
9. What is one way to improve the effectiveness of IT customer support training?
10. What is the importance of user feedback in IT customer support?

## Answer Key 4: Use spreadsheet software

1. What is the primary role of customer support in IT services?  
Answer: To assist users with resolving technical problems and ensure a smooth user experience.
2. What are some common channels for IT customer support?  
Answer: Phone support, email support, live chat support, and self-service resources (online knowledge bases or FAQs).
3. What is the benefit of clear communication in IT customer support?  
Answer: It helps manage user expectations, reduces frustration, and ensures users understand the troubleshooting process.
4. What is an advantage of offering self-service resources for IT customer support?  
Answer: Empowers users to find solutions independently, reducing wait times for phone or chat support.
5. What is a potential drawback of long wait times for IT customer support?  
Answer: It can lead to user frustration and decreased productivity while waiting for a resolution.
6. How can helpful and knowledgeable IT support representatives improve customer satisfaction?  
Answer: By efficiently resolving issues, providing clear explanations, and demonstrating a positive attitude.
7. What is an example of a situation where an IT customer support representative might escalate an issue?  
Answer: If the problem is beyond their expertise or requires specialized technical knowledge to resolve.
8. How can documenting troubleshooting steps be helpful in IT customer support?  
Answer: It allows for smoother handover of complex issues to senior technicians and ensures a clear history of the troubleshooting process.
9. What is one way to improve the effectiveness of IT customer support training?  
Answer: Include scenario-based training exercises to help representatives practice troubleshooting real-world user issues.
10. What is the importance of user feedback in IT customer support?  
Answer: It helps identify recurring problems, improve existing support processes, and ensure the support system caters to user needs effectively.

## Task Sheet 4.1:

### Task Sheet 4.1: Perform Customer Support Service

**Scenario:** You are a customer support representative for a computer repair company. The company offers phone, email, and live chat support for its customers experiencing hardware problems with their desktops, laptops, and peripherals.

#### Common Hardware Issues:

- Brainstorm a list of 10 common computer hardware problems that customers might encounter.

#### Consider issues related to:

- Internal Components: Faulty RAM, malfunctioning hard drive, overheating CPU, failing graphics card, etc.
- Peripherals: Non-responsive keyboard or mouse, flickering monitor, faulty printer connections, etc.
- External Factors: Sudden power surges, accidental spills, physical damage to components, etc.

#### Troubleshooting Scenarios:

- Choose 3 of the problems you identified in task 1 and develop a troubleshooting guide for each.

#### Each guide should include:

- A clear description of the problem and its symptoms (e.g., slow computer performance, unexpected shutdowns, blue screen errors).
- A step-by-step troubleshooting process for users to try and resolve the issue independently (e.g., checking for overheating, restarting the computer, updating drivers).
- Information on when to escalate the issue to a technician for further diagnosis and repair.

## Review of Competency

Below is yourself assessment rating for module “**Interpret IT Support Services Fundamentals**”

SL no	Assessment of performance Criteria	Yes	No
1.	Personal Computer and <u>other required devices</u> are checked and <u>ergonomic requirements</u> are ensured.		
2.	<u>Required software</u> are identified and accessed.		
3.	Printing facility and Internet connectivity are ensured.		
4.	Custom directory/folder is created and renamed according to job requirements.		
5.	<u>Required Word document</u> is created using word processing software.		
6.	<u>Contents</u> are inserted into the document according to requirements.		
7.	<u>Layout and formatting techniques</u> are applied according to specification.		
8.	<u>Page setup</u> is used and print preview option is utilized.		
9.	Document is saved in specific directory as per instruction.		
10.	Document is printed as per requirement.		
11.	Presentation slides are created using presentation software		
12.	Design theme is applied to the presentation		
13.	New slides are inserted and contents added as per job requirement.		
14.	Contents are modified and formatted.		
15.	Animation and slide transitions are applied to enhance the presentation.		
16.	Presentation is saved in specific directory as per instruction.		
17.	Presentation handouts are printed as per requirement.		
18.	Spreadsheet is created using Spreadsheet software.		
19.	Worksheet layout is set and formatting is applied according to job requirements.		
20.	Data is inserted as per instruction		
21.	<u>Function, formula</u> and <u>conditional formatting</u> are used to process data.		
22.	Chart is created to enhance data presentation.		
23.	Workbook is saved in specific directory as per instruction.		
24.	Internet access is ensured.		
25.	Required websites are visited to access specific resources.		
26.	Documents are scanned as required		
27.	E-mail facility is used to send and receive mail.		
28.	Accounts are signed out.		
29.	Applications are closed as per workplace procedure.		

I now feel ready to undertake my formal competency assessment.

Signed:

Date:

## Development of CBLM

The Competency based Learning Material (CBLM) of ‘**Interpreting IT Support Services Fundamentals**’ (**Occupation: IT Support Service, Level-3**) for National Skills Certificate is developed by NSDA with the assistance of SIMEC System Ltd., ECF Consultancy & SIMEC Institute of Technology JV (Joint Venture Firm) in the month of June, 2024 under the contract number of package SD-9B dated 15th January 2024.

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