Federal Democratic Republic of Ethiopia Ministry of Education

ISBN

PRICE

INFORMATION TECHNOLOGY TEACHER GUIDE GRADE 7

Federal Democratic Republic of Ethiopia Ministry of Education

INFORMATION TECHNOLOGY

TEACHER GUIDE

GRADE 7



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FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF EDUCATION

INFORMATION TECHNOLOGY

TEACHER GUIDEBOOK

GRADE 7

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Preface

The way humans communicate and work has evolved as a result of Information Technology (IT). Information technology is defined as the use of systems, primarily computers and telecommunications, for the storage, retrieval, and transmission of data. We live in the information age, and IT is used in almost every industry. It is now part of our daily lives and has had a significant impact on society. We use information technology for education, communication, health, business, and so forth. Through online applications and smart gadgets, family and friends may stay in touch. Thus, IT is important for every one of us.

This textbook is for grade 7 students of the Federal Democratic Republic of Ethiopia (FDRE) to teach the basic knowledge and skills of IT since it is essential for their future education and lives.

The books covers selected fundamental knowledge and skills of IT. It is organized into six units as shown below:

- Unit One introduces the fundamental concepts of Introduction to Information and Communication Technology (ICT), Information Technology (IT) and Computer.
- Unit Two presents and describes the basic Computer Hardware and their functionalities.
- Unit Three discusses the basic concepts and skills of using computer software.
- Unit Four covers the basic terminology of internet, and knowledge and skills necessary to use the internet.
- Unit Five shows how to apply Security and Safety issues while using computers.
- Unit Six offers the students the basic programming concepts of LOGO programming.

This textbook is designed in a simple and student centered approach which invites students to use different learning methods. It also includes brainstorming activities to help students to link their previous knowledge with the topics. Activities which help students to develop their skills and knowledge are incorporated. In addition, the textbook contains the basic and current knowledge of IT.

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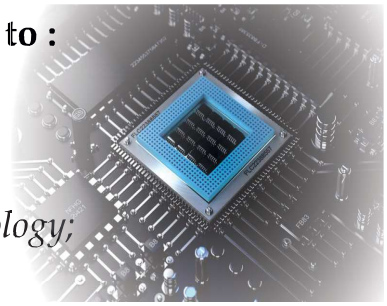
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UNIT

1 Introduction to Information & Communication Technology

Unit Outcomes

At the end of this unit, students will be able to :



- *define ICT;*
- *define computer;*
- *differentiate between IT and ICT;*
- *explain the concepts of information technology;*
- *discuss the basic elements of ICT system.*

Overview

This unit draws students' attention to the important role that Information and Communication Technology (ICT) plays in our daily lives. Nowadays, ICT is used in communication, education, entertainment and e-commerce. The unit also describes the basic terminologies such as information communication technology, and information technology. The basic elements of ICT including data, information, user, communication and technology are described in detail in the unit. In addition, the unit gives background knowledge about computers and their basic characteristics.

⚜ *Dear teacher, this unit is expected to be covered in ten periods.*

#	Topics covered	Suggested number of periods	Instructional strategies	Required instructional resources	Assessment strategies	Minimum learning competency (MLC)
1	Definition of Information and Communication Technology	2	• Gapped lecture • Demonstration • Discussion	• Computer • Communication devices e.g. cellphone • Student textbook • Projector	• Question and answer • Exercises (classwork, homework, individual/ group assignment)	Explain ICT and its benefits in daily life
2	Basic elements of ICT system	3				
3	ICT in our daily life	3				
4	Definition of computer	2				

1.1. Overview of Information and Communication Technology

In this sub-unit, students will be able to learn about ICT and understand what it is. Therefore, at the end of this sub-unit, students will be able to:

- define ICT, Technology and Information Technology.

⚜ *This topic is expected to be covered in two periods.*



Brainstorming activity

Qusetions

- Do you know what ICT is?
- Can anyone give us an example of ICT that we use in our homes?

Possible answers

- Yes teacher,
- Our TV, our satellite dish.

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the ICT related terminologies (mobile phone, computer, television,etc.). Your lecture should focus on defining ICT and related in a way that the students can understand easily. ■ Group discussion • Use small groups who are going to discuss ICT, IT and Technology, and let the groups share their knowledge of each terms. At the end of the period, let the representatives of each group report to the class and then please try to summarize the discussion made by the student

Required instructional resources	■ The following instructional resources are needed for the proper handling of the section. • Computer • Cellphone • Student textbook
Assessment strategy	■ Question and answer • Please, ask the students about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. • Please, also make sure that you ask questions in the middle and at the end of each topic to assess the students' grasp of the concepts. ■ Exercises (class work) • Dear teacher, let the students answer some of the review questions found on the student textbook individually for five minutes;,- then present the answer to the whole class. ■ Group discussion • Dear teacher please facilitate students to work on activity 1.1.

1.2. Basic Elements of ICT System

In this sub-unit, students will learn about basic elements of ICT. Hence, at the end of this sub-unit, students will be able to:

- define the terms data, information, user, technology and communication.

⚜ *This topic is expected to be covered in 3 periods.*



Brainstorming activity

Qusetions

- Can anyone tell us the difference between data and information?

Possible answers

- Data: Numbers, text symbols, speech, static or dynamic image,Information: is the result of processed data

- Dear teacher, it is recommended to use the following instructional, resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Required instructional resources	■ As much as possible, the following instructional resources are needed for the proper handling of the section. • Computer • Student textbook • Internet

Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. And try to give practical examples which help the students to grasp the concept easily. ■ Group discussion • Let the students discuss some of the review question found on the studenttextbook.Then present the answer to the whole class and facilitate them to work on activity 1.2.
Assessment strategy	■ Question and answer • Please,check the students' understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. • Please, also make sure that you ask questions in the middle and at the end of each topic to assess students' grasp of the concept. ■ Exercises • You are recommended to facilitate a class work for the review questions found on the student textbook.

1.3. ICT in Our Daily Life

In this sub-unit, students will learn about the use of ICT in our daily life. At the end of this sub-unit, students will be able to:

- identify the use of ICT in communication, education, and entertainment.

⚜ *This topic is expected to be covered in three periods.*



Brainstorming activity

Qusetions

- Have you ever used ICT before? For what purpose have you used?

Possible answers

- We use ICT at home, at school, in the workplace, in the streets, in places we visit during holidays, on business, and in public spaces.

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Required instructional resources	■ As much as possible, use the following instructional resources for the proper handling of the section. • Student textbook • Computer

Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. • Dear teacher, please display different devices that can clarify the students' understanding about the role of ICT and ask them to identify itsuse. For example, you can show your mobile phone while teaching ICT in communicationand playing games for entertainment. ■ Group discussion • Use small groups for the discussions and let the representative of each group report to the class.

Assessment strategy	■ Question and answer • Please ask the students about their understanding and their experience of usingICT at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. • Please also make sure that you ask questions in the middle and at the end of the class to assess the students' grasp of the concepts. • Dear teacher please provide support and feedback based on the level of the students' understanding and allow them to share their experiences. • You can ask talented students additional questions, for example, emerging ICT technologies such as AI and IOT. ■ Exercises: Use class work and group assignments. • Dear teacher, let the student discuss some of the uses of ICT in their environment and present their answers to the whole class. Facilitate them to work on ***activity 1.3.***

1.4. What is Computer

In this sub-unit, students will learn about definition of computer.At the end of this sub-unit, students will be able to:

- define computer and
- provide reasons why people use computer.

⚜ *This topic is expected to be covered in two periods.*



Brainstorming activity

Qusetions

- What is the name of the machine which can take data, process the data and give results of prosed data?

Possible answers

- A computer is any calculating device or machine. But these days, computers process not only numbers but also texts and pictures.

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section

Strategy Type	Strategy Methods
Required instructional resources	■ As much as possible, the following instructional resources are needed for theproper handling of the section. • Computer • Student textbook

Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Demonstration • If you have access to a projector, show students the different types of computer using graphically rich images that help the students grasp the concept better. ■ Group discussion • Use small groups to discuss why people use computer, and let the representative of each group report to the class.
Assessment strategy	■ Question and answer • Please, ask the students about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. • Please, also make sure that you ask questions in the middle and at the end of each class to assess students' understanding of the concepts.

Answers to Activity 1.1

1. Discuss the term ICT in groups and share your experiences of using ICT with your friends.

   An ICT system is a set up consisting of hardware, software, data and the people who use them. It commonly includes communication technologies such as the internet, telephones, video equipment, CDs, DVDs and computers which are some of the common examples of ICT system. Additionally, the students may share their experiences of using ICT technologies; for example, their experiences of using tablets and mobile-phone. Please, entertain their reflections.

2. Write the differences between IT and ICT using your own words and present it to the class.

   - Information Technology (IT) refers to an entire industry that uses computers, networking, software and other equipment to manage information. It is the process of creating, maintaining, and using computer software, hardware, and networks.
   - IT is a technology related to computing data while ICT is related to both computing data and communication technologies.
   - ICT is described as using computers and other digital technologies to aid individuals or institutions for handling or using information.
   - The core services of IT include giving tools that hasten company productivity, automating business processing, and supplying information which is the basicand core service of it.
   - ICT is mainly used in the academic setup while IT is used in more complex and bigger organizations such as companies and large corporations.

- Here, please,make sure that the students do not directly copy the meanings of each term from the student textbook.

Answers to Activity 1.2

1. Identify the basic elements of ICT system and discuss each of them in groups with examples
    a. Data: can be defined as any type of representation of an object or an event. Examples include Covid-19, HIV/ ADIS, Influenza and Flu
    b. Information: is the result of processing data.

       For example, Covid-19, HIV/ADIS, Influenza, and Flu are diseases caused by virus.
    c. User: is a person who has access to ICT and utilizes it, for example,teachers,andstudents.
    d. Technology: is the study and transformation of techniques, tools, and machines created by humans. Television, computer,and radio are examples of it.
    e. Communication is the process of moving information from one place to another, for example SMS, chat, email and phone call.
2. Turn the given data below into information; you can assign any meaningful and appropriate title to them.
    1. 0,2,4,6,8,10

       The students may come-up with different answers. For example, 0, 2, 4, 6, 8, and 10 are even numbers or 0, 2, 4,6,8, and 10 are a multiple of 2 etc. Therefore, the teacher should entertain the students' answer.

2. Biology, Physics, Chemistry, mathematics
   Here, the students may come up with different answers too. For example, Biology, Physics, Chemistry and Mathematics are major courses in Science.Technology, Engineering and Mathematics (STEM) or Biology, Physics, Chemistry, and Mathematics are natural science courses. Therefore, the teacher should entertain the students'answers accordingly.

Answers to Activity 1.3

1. Give and explain some examples (examples that are not mentioned in this textbook) of the uses of ICT in daily life.
   In addition to the roles of ICT mentioned in the student textbook, there are other many uses of ICT in our daily life,for example, ICT in health, agriculture, and transport.
   - **ICT in health**: ICT allows recording and storing the patients' data in a computer database system. This helps to retrieve the patients' information easily.
   - **ICT in agriculture**: ICT helps to enhance agricultural and rural development through improved information and communication processes. For example, it helps to send a short SMS message to know the daily market price of items and weather forecasting.
   - **ICT Transport**: ICT provides a variety of services in transport system such as providing access to travel information. For example, you can explain about the Ethiopian airlines travel information, and driverless carto them.
2. Please let the students form a small group and discuss the role of ICT in the following cross-cutting issues. Then present it to the class:

- **Child trafficking**: creating awareness and communicating with stakeholders using different communication channels such social media.
- Covid-19 and HIV/ADIS: ICT helps to provide information about preventive mechanisms of transmission of Covid-19 and HIV/ADIS from tangible sources. For example, Ministry of health can use-webpages and media outlets to deliver information about these issues.
- Climate change and agriculture: ICT plays a great role in weather forecasting.
- Gender discrimination: ICT plays a major role in gender equality and empowerment of women. For example, it creates equal opportunity for men and woman in accessing information.

- Here, the students might have various answers for each cross-cutting issue; therefor, please entertain their answers accordingly.

Answers to Unit 1 Review Questions

Part I. Write TRUE if the statement is correct and FALSE if it is incorrect.

1. Computer is only a calculating device or machine. [False]
2. ICT tools cannot be used for entertainment. [False]
3. The nature of teaching and learning system has changed because of ICT. [True]
4. People use computer to make their job easier and faster. [True]
5. Data on its own has a meaning. [False]
6. Data is any type of representation of an object or an event. [True]
7. Communication devices simply allow computers and various ICT systems to be connected to one another. [True]

Part II. Choose the best answer among the given alternatives.

1. An elements of ICT that has no meaning by itself is:

   A. information **C. data**

   B. user technology

2. Which one of the following sectors can be supported by ICT?

   A. Education **D. All**

   B. Agriculture

   C. Health

3. The characteristics of a computer that refers to how fast a computer can perform a given task is:

   A. storage C. diligence

   B. speed D. communication

4. A processed data is called _____.

   A. information B. data

C. input D. process

5. Which one of the following is the risk that we may face due to overuse of computers?

A. eyestrain C. overuse injuries of arms,

B. joint pain, **D. all**

Part III. Write the correct answer in each of the spaces provided.

1. **Information technology** refers to the development, maintenance, and use of computer software, hardware and networks.
2. Data representation could be in the form of **numbers, text symbols, speech, static image** or **dynamic image**
3. **Computers** store data for later use in appropriate storage devices, and retrieve whenever it is necessary.
4. **Users** are people who design and operate the software, input the data, build the hardware and keep it running.
5. ICT stands for **Information and Communication Technology.**
6. **User** is an individual who has access to ICT and utilizes it.
7. **Information** is usually the processed outcome of data.
8. **Technology** is the tool that is designed based on scientific knowledge.

Part IV. Discussion questions

1. Define the term computer**.**

   Answer: - Computer is an electronic device that takes an input, processes it under a set of instructions called program and produces an output.

2. What is the difference between data and information?

   Answer: - Data by itself is meaningless. **Information** is data that has

meaning. Raw input is referred to as data that is processed or structured to provide meaningful output.

3. Write a short note on the basic elements of ICT systems.

   Answer: Basic elements of ICT systems are the following:

   - **Data**:- can be defined as any type of representation of an object or an event.
   - **Information:-**is the result of processed data.
   - **User:** is a person who has access to ICT and utilizes it.
   - **Communication**: is the process of passing information from one place to another.
   - **Technology**refers to a set of **techniques, tools, and machines created by humans to solve problems.**

4. Explain the terms technology and information technology.

   Answer: Technology is the study and transformation of techniques, tools, and machines created by humans.

   Information Technology is the use of computers, storage, networking and other physical devices to create, process, store, secure, retrieve data and information.

5. Define information and communication technology (ICT)

   Answer: Information and communication technology (ICTs) refers to all communication technologies including the internet, wireless networks, cell phones, computers, software, middleware, video-conferencing, social networking , and other media applications and services which enable users to access, retrieve, store, transmit, and manipulate information.

UNIT 2 Computer Hardware

Unit Outcomes

At the end of this unit, students will be able to :

- *identify the hardware components of computer;*
- *identify functions of each hardware components;*
- *explain computer hardware.*



Overview

In this unit, students will learn about the major hardware components and categorize them in to input, processing, output and storage devices. Thus, students will explore the internal and external computer hardware components. Input devices are parts of computer hardware that are used to insert data into a computer system. The CPU is the brain of the computer which performs all arithmetic, logical and control operations. An output device is computer hardware that allows a computer to communicate the results of data processing to the outside world. A storage device is used to store data in a computer system.

⚜ *Dear teacher, this unit is expected to be covered in ten periods.*



Brainstorming activity

Qusetions

- do you know what computer hardware is?
- Can you give us an example of computer hardware?

Possible answers

- Computer hardware is the physical part of the computer that you can see and touch.

#	Topics covered	Suggested number of periods	Instructional strategies	Required instructional resources	Assessment strategies	MLC
1	Introduction to computer hardware	2	• Gapped lecture • Demonstration • Discussion	• Computer • Input devices such as keyboard, mouse… • Output devices such as monitor printer, • CPU • Storage devices such as CD, hard disk, flash disk • Internet connection • Student textbook • Projector	• Question and answer • Exercises (classwork, homework, individual/group assignment)	Identify and describebasic computer hardware
2	Input Devices	2				
3	Processing Device	2				
4	Output devices	2				
5	Memories / Storagedevices	2				

2.1. Introduction to Computer Hardware

In this sub-unit, students will learn about computer hardware and its components.

At the end of this sub-unit, students will be able to:

- define hardware,
- identify components of computer hardware.

⚜*This topic is expected to be covered in two periods.*

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussions and let the representative of each group report to the class.
Required instructional resources	■ As much as possible, the following instructional resources need to be used for theproper handling of the section. • Computer with its components • Student textbook

Assessment strategy	■ Question and answer • Please askthestudents about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. ■ Exercises: use class work. • Let the students answer some of the review questionsin the student textbook individually for five minutes and present their answers to the whole class.

2.2. Input Devices

In this sub-unit, students will learn about input devices.
At the end of this sub-unit, students will be able to:

- define input devices;
- identifythe different input devices.

⚜ *This topic is expected to be covered in two periods.*

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussion of the types and functions of input devices and let the representative of each group report to the class. ■ Demonstration • Show them the different types of input devices and if you have access to a projector, present additional input devices in a more interactive ways.
Required instructional resources	■ As much as possible, use the following instructional resources for the proper handling of the section. • Computer • Examples of input devices such as keyboard, mouse • Student textbook

Assessment strategy	■ Question and answer • Please, ask students about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. • Please, also make sure that you ask questions in the middle and at the end of the class to assess students' understanding of the concepts. ■ Exercises: group assignments and class work. • Let the students discuss some of the components of input devices and present their answers to the whole class;facilitate them to work on ***activity 2.1.***

2.3. Central Processing Unit (CPU)

In this sub-unit, students will learn about processing device. Therefore, at the end of this sub-unit, students will be able to:

- define processing device;
- identify CPU.

⚜ *This topic is expected to be covered in two periods.*



Brainstorming activity

Qusetions

- do you know what a CPU is?

Possible answers

- CPU is the brain of the computer which performs all arithmetic, logical and control operations.

- Dear teacher, it is recommended to use the following instructional resource and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped Lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussions and let the representative of each group report to the class about CPU and its function. ■ Demonstration • If you have access to a projector, show the students the image of different versions (advancements) of CPU that helps them grasp the concept better.

Required instructional resources	■ As much as possible, the following instructional resources need to be used for the proper handling of the section. • Computer • CPU • Student textbook
Assessment strategy	■ Question and answer • Please ask the students about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding • Please also make sure that you ask questions in the middle and at the end of each lesson to assess students' grasp of the concepts. ■ Exercises:homework and classwork. • Dear teacher, you are recommended to facilitate the class work for review questions. In addition to the classwork, you can give homework on the functions of CPU.

2.4. Output Devices

In this sub-unit, students will learn about output devices.
At the end of this sub-unit, students will be able to:

- define output devices;
- identifythe different output devices such as monitor, printer, and plotter.

⚜ *This topic is expected to be covered in two periods.*

- Dear teacher, it is recommended to use the following instructional resource and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussions and let the representative of each group report to the class. ■ Demonstration • Show the students the images of different output devices using projector that help the students grasp the concept better.
Required instructional resources	■ As much as possible, the following instructional resources are needed for the proper handling of the section. • Computer • Output devices such as monitor,and printer • Student textbook

Assessment strategy	■ Question and answer • Please, make sure you ask questions in the middle and at the end of each lesson to assess students' grasp of the concepts. ■ Exercises:group assignments and class work. • Dear teacher, you are recommended to facilitate the classwork for review questions which is found in the student textbook.You can also give the students an assignment or homework on various output devices and give them feedback on their works.

2.5. Memories / Storage Devices

In this sub-unit, students will learn about storage devices.
At the end of this sub-unit, students will be able to:

- define storage devices;
- identify the different storage devices.

⚜ *This topic is expected to be covered in two periods.*

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussions and let the representative of each group report to the class. ■ Demonstration • If you have access to a projector, present the image of storage devices
Required instructional resources	■ As much as possible, the following instructional resources are needed for the proper handling of the section. • Computer • Examples of storage device such as RAM, hard disk, CD, and flash disk • Student textbook

Assessment strategy	■ Question and answer • Please, make sure you ask questions in the middle and at the end of the lesson to assess students' understanding of the concepts. ■ Exercises: homework and class work. • Dear teacher, let the students discuss storage devices and present their answers to the whole class.You can also give them activity 2.2 for homework.

Answer to Activity 2.1

1. List at least three types of input devices and discuss their functions in group.

   Answer:

   - **Keyboard**: is used for entering data into a computer.
   - **Mouse**:allows you to point to things on the screen, click on them, and move them around.
   - **Joystick**: is used to move within the screen's environment and is widely used in the computer games industry.
   - **Scanner**:is used to reproduce photographs on the computer screen.
   - **Touch sensitive screen:** allows the user to interact with the computer by touching it.
   - **Light pen:** is used to select a menu item or to draw on the monitor screen.
   - **Digital stills camera:** captures an image that is saved in the camera's memory.

- **Bar code reader:** A bar code is a pattern made up of different thickness lines. This technology allows for quick and error-free data entry into the computer.
- **Microphone:** It is a device used to input spoken word as aninput data or commands.

2. Please, make a small group and match the above input devices with the following tasks.
   - To capture a photo of your family: **camera**
   - To recorded and input your voice to the computer: **Microphone**

Answers to Activity 2.2

1. Identify and explain the basic parts of computer hardware with examples.

   Answers: Hardware can be classified as:

   Input device is used to input information into the computer, e.g. keyboard and scanner.
   Processing device: is responsible for all functions and processes, e.g. CPU, register and control unit.
   Output device: allows a computer to communicate the results of data processing to the outside world. Monitor and printer are examples of output device.
   Memories / Storage devices: are used to store data.These devices include RAM and ROM.

2. Discuss storage devices in group and present the different examples of primary and secondary storage devices to the class.

   Answer: Primary storage devices such as Random Access Memory (RAM) are responsible for storing the instructions and the data that the computer is using at a particular point in time. **Read Only Memory (ROM)**is a permanent form of storage.

   Secondary storage devices: Examples include Hard Disk, Magnetic Tape , Floppy Disk , andOptical Disk.

Answers to Unit 2 Review Questions

Part I. Write TRUE if each of the following statements is correct and FALSE if it is incorrect.

1. Secondary storage devices store data and information permanently. **[True]**
2. Random Access Memory (RAM) is a permanent form of storage. **[False]**
3. Microphoneis commonly known as a pointing device used to control the position of the cursor on the screen. **[False]**
4. Control unit monitors operation of the entire computer system. **[True]**
5. Light pen is used to select a displayed menu item or draw pictures on the monitor screen. **[True]**
6. The arithmetic logical unit (ALU) is used to store temporary results. **[False]**

Part II. Choose the best answer among the given alternatives.

1. An output device used to listen sound from a computer is:

   A. printer
   C. speaker
   B. plotter
   D. microphone

2. A secondary storage device that uses optical and laser technologies to read and write data is:

   A. flash disk
   D. all
   B. CD
   C. hard disk

3. Which one of the following is an example of input device?

   A. scanner
   C. projector
   B. printer
   D. speaker

4. Parts of the CPU that helps to perform addition is:

   A. Arithmetic logic unit
   B. Register

C. Control unit D. all

5. Primary storage used to store data permanently is:

A. ROM C. Hard disk

B. RAM D. CD

Part III. Write the correct answer in each of the spaces provided.

1. **Plotter** is an output device, which is used to print highly graphical information on paper.
2. **Register** is a part of the CPU used to store temporary results.
3. The storage devices are classified as **primary and secondary storage devices.**
4. Computer can be divided into two parts: **hardware and software.**
5. **Keyboard** allows users to enter data into a computer.
6. **Central processing unit (CPU)**is the brain of the computer.

Part IV.Discussion questions

1. Write the differences between input and output devices.

   Answer: An input deviceis a piece of computer hardware equipment used to provide data and control signals to the computer. It enables the user to input information into the computer.

   An output device is computer hardware that allows a computer to communicate the results of data processing to the outside world.
2. List at least three examples of output devices and explain them.

   Answer: Monitor, printer, robot , plotters, speaker andheadphone are examples of output devices.
3. What is the central processing unit (CPU)?

   Answer: The **central processing unit (CPU)** is the brain of the computer which performs all arithmetic, logical and control operations.
4. Discuss the different parts of the CPU.

   Answer: Arithmetic-logic unit, registers and the control unit.

UNIT

3

Computer Software

Unit Outcomes

At the end of this unit, students will be able to :

- *differentiate between hardware and software;*
- *explain computer software;*
- *explain application software and system software;*
- *discuss system software with example;*
- *discuss application software and provide examples.*



Overview

In this unit, you will learn about system software and application software. This unit provides detailed description about system software and application software. Computers process data under the control of sets of instructions called computer programs. System software is a set of generalized programs that manage the resources of the computer such as the central processing unit, communication links, and peripheral devices. Application software also known as end-user program is designed to satisfy a particular need of a particular environment. A word processor is an application program that allows users to create, edit, and format documents.

⚜ *Dear teacher, this unit is expected to be covered in sixteen periods.*



Brainstorming activity

Qusetions

- Do you have any information about computer software?
- Can you give us an example of computer software?

Possible answers

- Computer software is a collection of computer instructions or programs that tell the computer what to do and how to do.

3.1. Introduction to Computer Software

#	Topics covered	Suggested number of periods	Instructional strategies	Required instructional resources	Assessment strategies	MLC
1	Introduction to computer Software	2	• Gapped lecture • Demonstration • Discussion	• Computer • Operating system, • Microsoft office • Student textbook • Projector	• Question and answer • Exercises (classwork, homework, individual/group assignment)	Identify and describebasic software
2	System Software	3				
3	Application Software	11				

In this sub-unit, students will learn about computer software.
At the end of this sub-unit, students will be able to:

- define software;
- identify category of computer software.

⚜ *This tc pected to be covered in 2 periods.*



Brainstorming activity

Qusetions

- Do you know how to prepare letter using a computer?
- What is word processing software?

Possible answers

- A word processor is application software that allows users to create, edit, and format documents.

- Dear teacher, it is recommended to use the following instructional resource and assessment strategies for this section

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussions and let the representatives of each group report to the class.

Required instructional resources	■ As much as possible, the following instructional resources are needed for the proper handling of this section. • Computer • Student textbook • Projector
Assessment strategy	■ Question and answer • Ask questions in the middle and at the end of the lesson to assess students' grasp of the concepts. ■ Exercises: class work • Dear teacher, to cover these topics, you may let the students answer the review question found on the student textbook individually and present their answers to the whole class.

3.1.1 System Software

In this sub-unit, students will learn about system software. At the end of this sub-unit, students will be able to:

- define system software;
- identify different examples of system software such as operating system, utility software and language software.

⚜ *This topic is expected to be covered in three periods.*

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Let the students discuss some of the review questions found on the student textbook and then present the answer to the whole class. ■ Demonstration • Show the students the different examples of system software such as operating system, utility software and language software.
Required instructional resources	■ As much as possible, the following instructional resources are needed for the proper handling of the section. • System software(operating system, deriver software) • Computer • Student textbook • Projector

Assessment strategy	■ Question and answer • Ask the students about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. ■ Use exercises: group assignments and class-work. • Dear teacher, let the students answer some of the review questions found on the student textbook in group, and then present their answers to the whole class.

3.1.2 Application Software

In this sub-unit, students will learn about application software. Therefore, at the end of this sub-unit, students will be able to:

- define application software;
- identify different examples of application software such as word processing software and spreadsheet.

⚜ *This topic is expected to be covered in three periods.*

- Dear teacher, you are recommended to use the following instructionalresources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussions and let the representative of each group report to the class.
Required instructional resources	■ As much as possible, the following instructional resources are needed for the proper handling of the section. • Computer • Student textbook • Projector

Assessment strategy	■ Question and answer • Please, ask the students about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. • Please, also make sure that you ask questions in the middle and at the end of the lessonto assess the students'understanding of the concepts. ■ Use exercises: group assignments and class-work. • Dear teacher, let the students answer activity 3.1 in groups, and then present the answers to the whole class.

3.2. Overview of Word Processing

In this sub-unit, students will learn about word processing.
At the end of this sub-unit students, will be able to:

- define word processing software;
- able to create, edit and save word document.

⚜ *This topic is expected to be covered in eight periods.*

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Group discussion • Use small groups for the discussions and let the representative of each group report to the class
Required instructional resources	■ As much as possible, the following instructional resources are needed for the proper handling of the section. • Microsoft Word • Computer • Student textbook • Projector
Assessment strategy	■ Question and answer • Ask questions atthebeginning about the previous lesson (types of software and uses of application software), inthe middle and at the end of the lesson to assess students' understanding of the concepts of the lesson. ■ Use exercises such as class work. • Dear teacher, let the students answer activity 3.2 in groups.

Answer to Activity 3.1

1. Discuss the different examples of system software and application software in groups and present it to your class.

Examples of system software:

Operating Systems: All of your computer-like devices run on an operating system.

Utility software: Many operating systems have utility programs built-in for common purposes because their existence can help prevent when a computer error suddenly occurs.

Language software: This is used by a programmer to develop anapplication program.

Examples of application software include word processing, spreadsheet, database management, and graphics software.

Answer to Activity 3.2

Dear teacher, please assist the students when they write a text on Microsoft word, save the document created and properly close the document.

Answers to Unit 3 Review Questions

Part I. Write TRUE if the statement is correct and FALSEif it is incorrect

1. Computer hardware and software can work independently. **[False]**
2. View button is used to switch between different view modes for a document. **[True]**
3. System software does not accomplish specific task to the user. **[True]**
4. Application software is designed to accomplish a particular task. **[True]**

5. Spreadsheet is an example of system software. **[False]**

Part II. Choose the best answer among the given alternatives.

1. _____ is an application software used to write and edit text.
   A. Spreadsheet
   C. Word processor
   B. Database management
   D. Graphics editor

2. Which one of the following is not an example of application software?
   A. Utility software
   D. All
   B. Language software
   C. Operating system

3. The screen element of Microsoft Word that consists of the major menu items such as Home, Insert, Page Layout and others is:
   A. Title bar
   C. Toolbar
   B. Menu bar
   D. Task bar

4. _____ is an example of system software.
   A. Microsoft word
   C. Spreadsheet
   B. Microsoft Windows
   D. All

5. Which one of the following statements is true?
   A. Application software is designed for solving a specific task
   B. System software is designed for solving a specific task.
   C. Utility software is designed for a general purpose.
   D. All

Part III. Write the correct answer in each of the following spaces provided.

1. Using **word processor** application program, you can add pictures, tables, and charts to your documents.
2. **System software** is responsible for controlling, integrating, and managing the individual hardware components of a computer system.

3. **Computer software** is a collection of computer programs or instructions that tell the computer what to do.
4. Computer software can be classified as s**ystem software and application software**

Part IV. Discussion points

1. Define computer hardware and software.

   Answer:Computer hardware is the physical equipment of the computer that you see and touch.

   Computer software is a collection of data or computer instructions that tell the computer whatandhow to work.

2. What are the main screen elements of Microsoft Word processer?

   Answer: The main screen elements of Microsoft Word processer are:

   - Enter text;
   - Edit text;
     - Insert
     - Delete
     - Copy
     - Move
   - Save and Open text documents;
   - Format text and the document;
   - Export and save your word documents in PDF and XPS file format;
   - Use indices of keywords and their page numbers;
   - Validate text;
     - Spelling
     - Grammar

- Add graphics.
  - Pictures
  - Graphs

3. Write the steps to create and save a word document in MS-Word.

   Answer

   To create adocument:

   - On the **Start** menu, click **All Programs** and find the **Microsoft Office** folder; then select **Microsoft Word 2010.**

   To save a word processing

   - Go to the **File** menu and choose **Save As**. By utilizing the Save in the field and providing the file name in the File Name area in the **Save As dialog box**, you may select the location where the file will be saved. It is required to select the Save command from the File menu for each subsequent saving.

4. Explain the differences between system software and application software.

   Answer: System software is responsible for controlling, integrating, and managing the individual hardware components of a computer system where as **system software** does not perform specific tasks for the user.

   Application Software is designed to satisfy a particular need of a particular environment.

UNIT 4 Internet

Unit Outcomes

At the end of this unit, students will be able to :



- *define internet;*
- *identify the internet and the world wide web;*
- *Identify the different types of internet browser;*
- *open a browser and identify the screen elements;*
- *use web addresses to access websites.*

Overview

In the age of information, the internet has become a very popular mode of communication and way of accessing information on any topic of your interest. It also provides tremendous opportunities to students, researchers and professionals for getting information on matters related to academic and professional topics, and a lot more. In the present world, most of people who have computers around themselves use the internet to access information from the World Wide Web. Therefore, this unit will introduce you to the concepts of internet and related terms such as web page, website, internet browsers and search engine. You will be introduced to participate in the internet world.

⚜ *Dear teacher, this unit is expected to be covered in sixteen periods.*

#	Topics covered	Suggested	Instructional strategies	Required instructional resources	Assessment strategies	MLC
1	Introduction to computer hardware	2	• Gapped lecture • Demonstration • Discussion	• Computer installed with at least two internet browsers • Internet connection- Output devices such as monitor printer, • Studenttextbook • projector	• Question and answer • Exercises (classwork, homework, individual/ group assignment)	• Describe basic concepts of the internet
2	Input Devices	2				
3	Processing Device	2				

4.1. Definition of Internet and Basic Terminologies

In this sub-unit, students will learn about the basics of internet.
At the end of this sub-unit, students will be able to:

- define internet;
- identify basic internet terminologies.

⚜ *This topic is expected to be covered in four periods.*



Brainstorming activity

Qusetions

- What is internet

Possible answers

- Internet is a network of networks. It consists of private, public or government networks.

- Dear teacher, it is recommended to use the following instructional resources and assessment strategies for this section.

Strategy Type	Strategy Methods
Instructional strategies	■ Gapped lecture • Using the textbook, provide lecture to the class based on your assessment of the students' prior knowledge of the topic. ■ Demonstration • If you have access to a projector, please show the students different browsers and how can they use the internet. ■ Group discussion • Use small groups for the discussions on activity 4.1 and let the representative of each group report to the class.
Required instructional resources	■ As much as possible, use the following instructional resources for the proper handling of the section. • Computer • Internet connection • Student textbook • Projector

Assessment strategy	■ Question and answer • Please, ask the students about their understanding of the topics at the beginning. Make clarifications and corrections if the students have any misconception or misunderstanding. • Please, also make sure that you ask questions in the middle and at the end of the topic to assess students' understanding of the concepts.

4.2 Screen Elements and Views of Internet Browser

In this sub-unit, students will learn about screen elements of a web browser.

At the end of this sub-unit students, will be able to:

- identify internet browser software;
- use internet browser software;
- identify the screen elements of common internet browsers;
- describe the screen elements of common internet browsers.

⚜ *This topic is expected to be covered in four periods.*



Brainstorming activity

Qusetions

- What is the diffrence between internet and web?

Possible answers

- The internet is a global network of networks while the web is a means of accessing information available on the internet.