

## 15.0 INFORMATION AND COMMUNICATION TECHNOLOGY

### 15.01 INTRODUCTION

This module unit is intended to equip the trainee with knowledge, skills and attitudes that will enable him/her to understand and use Information and Communication Technology

### 15.02 GENERAL OBJECTIVES

By the end of this module unit, the trainee should be able to:

- a) appreciate the role of ICT in a business environment
- b) appreciate various components of a computer system
- c) acquire basic compute operation skills
- d) appreciate computer software
- e) understand data processing and data security
- f) appreciate computer networks
- g) understand the internet and web-related applications
- h) appreciate emerging trends in ICT
- i) apply the acquired knowledge and skills in ICT at the place of work

## 15.1.0 INFORMATION COMMUNICATION TECHNOLOGY

### SUMMARY OF TOPICS AND TIME ALLOCATION

CODE	TOPIC	SUB TOPIC	HOURS
15.1.1	INTRODUCTION TO COMPUTERS	<ul style="list-style-type: none"> <li>• Definition of Terms</li> <li>• Historical development of computers</li> <li>• Classification of computers</li> <li>• Role of ICT in a business environment</li> <li>• Role of computers</li> </ul>	15
15.1.2	COMPUTER SYSTEM COMPONENTS	<ul style="list-style-type: none"> <li>• Computer hardware</li> <li>• Computer hardware selection criteria</li> <li>• Computer software</li> <li>• Functions of various computer software</li> </ul>	15
15.1.3	OPERATING SYSTEM AND COMPUTER APPLICATION SOFTWARE	<ul style="list-style-type: none"> <li>• Features of an operating system</li> <li>• Features of application software</li> <li>• Choice of appropriate software</li> </ul>	10
15.1.4	WORD PROCESSING	<ul style="list-style-type: none"> <li>• Word processor</li> <li>• Creating a document</li> <li>• Editing a document</li> <li>• Formatting a document</li> <li>• Creating columns</li> <li>• Creating tables</li> <li>• Using graphics</li> <li>• Using mail merge</li> <li>• Printing documents</li> </ul>	10
15.1.5	SPREAD SHEETS	<ul style="list-style-type: none"> <li>• Meaning of spreadsheet</li> <li>• Areas where spread sheets are used</li> <li>• Worksheet layout</li> <li>• Building and saving a worksheet</li> <li>• Data manipulation on spreadsheet</li> <li>• Using formulae and functions on a spreadsheet</li> </ul>	10
15.1.6	DATA PROCESSING AND DATA SECURITY	<ul style="list-style-type: none"> <li>• Definition of terms</li> <li>• Data processing cycle</li> <li>• Data processing modes</li> <li>• Elements of data hierarchy</li> <li>• File organization and access</li> </ul>	15



		<p>methods</p> <ul style="list-style-type: none"> <li>• Databases and related terminologies</li> <li>• Threats and hazards to data</li> <li>• Methods of securing data</li> <li>• Health and safety issues in computer environment (Ergonomics)</li> </ul>	
15.1.7	COMPUTER NETWORKS	<ul style="list-style-type: none"> <li>• Definition of networks</li> <li>• Network components</li> <li>• Types of networks</li> <li>• Network topologies</li> <li>• Network security</li> <li>• Impacts of networks</li> </ul>	10
15.1.8	PRESENTATION PACKAGES	<ul style="list-style-type: none"> <li>• Types of presentations packages</li> <li>• Opening presentation package</li> <li>• Creating slides</li> <li>• Formatting slides</li> <li>• Running slides</li> <li>• Editing objects</li> <li>• Printing slides and handouts</li> </ul>	10
15.1.9	INTERNET AND WORLD WIDE WEB	<ul style="list-style-type: none"> <li>• Introduction to internet</li> <li>• Internet applications</li> <li>• Challenges in the use of internet</li> <li>• Internet security</li> </ul>	10
15.1.10	EMERGING TRENDS IN COMPUTER TECHNOLOGY	<ul style="list-style-type: none"> <li>• Identification of new trends in ICT</li> <li>• Impact of new trends in ICT to businesses</li> <li>• Challenges of emerging trends in ICT</li> <li>• Coping with new trends in ICT</li> </ul>	5
<b>TOTAL</b>			<b>120</b>

15.1.0 **INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)**

15.1.1T **INTRODUCTION TO COMPUTERS**

**THEORY**

15.1T0 **Specific Objectives**

By the end of this topic the trainee should be able to:

- a) definition of terms
- b) explain historical development of computers
- c) explain classification of computers
- d) explain the role of ICT in a business environment
- e) explain the role of computers in business

15.1.1T1 Definitions of terms

- Computer
- ICT

15.1.1T2 Historical development of computers (generations)

- 1<sup>st</sup> generation
- 2<sup>nd</sup> generation
- 3<sup>rd</sup> generation
- 4<sup>th</sup> generation
- 5<sup>th</sup> generation

15.1.1T3 Classification of computers

- Physical size and capability
  - Super computers
  - Main frames
  - Main computers
  - Micro computers
    - ◆ Desktops
    - ◆ Laptops
    - ◆ Palm tops
    - ◆ Notebooks
- Way of processing data
  - Analogue
  - Digital
  - Hybrid
- Purpose
  - Special purpose
  - General purpose
  - Dedicated computer
- Emerging trends in the computer development

15.1.1T4 Role of ICT in a business environment

15.1.1T5 Role of computers in business

## **PRACTICE**

15.1.1P0 **Specific Objectives**

By the end of this topic, the trainee should be able to:

- a) identify the parts of a computer system
- b) start up a computer
- c) manipulate the keyboard
- d) use the mouse

15.1.1P1 Identify parts of a computer system

- System unit
- Monitor
- Keyboard
- Mouse

15.1.1P2 Starting and restarting a computer

- Cold booting
- Warm booting

15.1.1P3 Manipulation of the keyboard

- Functional keys
- Alphanumeric keys
- Special keys
- Cursor movement keys
- Numeric keypad

15.1.1P4 Mouse skills

- Single clicking
- Dragging
- Right clicking
- Scrolling

15.1.2 **COMPTUER SYSTEM COMPONENTS**

## **THEORY**

15.1.2T0 **Specific Objectives**

By the end of this topic, the trainee should be able to:

- (a) describe computer hardware
- (b) discuss computer hardware selection criteria
- (c) describe computer software



(d) describe functions of various computer software

15.1.2T1

Computer Hardware

- Definition of computer hardware
- Functions of computer hardware
- Input devices
  - Keyboard
  - Mouse
  - Scanner
  - Barcode reader
  - Magnetic card input
  - Voice input devices
- Output devices
  - Monitor
  - Printer
  - Plotter
  - Sound output devices
- Central processing unit
  - Control unit
  - Arithmetic logic unit
  - Registers
- Storage media
  - Primary (main) memory
    - ♦ RAM
    - ♦ ROM
- Secondary storage media
  - Magnetic media
  - Optic media

15.1.2T2

Computer hardware selection criteria

15.1.2T3

Computer Software

- Definition of computer software
- Types of computer software
  - System software
    - ♦ Operating systems
    - ♦ Utility programs
  - Application software
    - ♦ General purpose application software
    - ♦ Tailor made (special purpose) software
  - Programming languages
    - ♦ Levels of programming languages

15.1.2T4

Functions of various computer software

## 15.1.3 OPERATING SYSTEM AND COMPUTER APPLICATION SOFTWARE

### THEORY

#### 15.1.3T0 Specific Objectives

By the end of this topic the trainee should be able to:

- a) describe features of an operating system
- b) describe features of application software
- c) choose appropriate computer software

15.1.3T1 Features of an operating system

15.1.3T2 Features of application software

- Word processors
- Spread sheets
- Database programs
- Presentation program

15.1.3T3 Choice of appropriate computer software

### PRACTICE

#### 15.1.3P0 Specific Objectives

By the end of this topic, the trainee should be able to use an operating system.

15.1.3P1 Using an operating system

- Operating system commands
  - Directories/folders creation
  - Directories/folders management
  - File management
- Managing peripherals
- Using accessories
- Using the control panel

## 15.1.3 WORD PROCESSING

### THEORY

#### 15.1.3T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) describe how to open a word processor
- b) explain how to create a document

- c) discuss how to edit a document
- d) describe how to format a document
- e) describe how to create columns
- f) describe how to create tables
- g) describe how to use graphics
- h) describe how to mail merge
- i) describe how to print a document

15.1.4T1      Opening a word processor

15.1.4T2      Creation of a document

15.1.4T3      Editing a document

15.1.4T4      Formatting a document

15.1.4T5      Creation of columns

15.1.4T6      Creation of tables

15.1.4T7      Use of graphics

15.1.4T8      Mail merge

15.1.4T9      Printing documents

### **PRACTICE**

**15.1.4P0      Specific Objectives**

By the end of this topic, the trainee should be able to:

- a) open a word processor
- b) create a document
- c) edit a document
- d) format a document
- e) create columns
- f) create tables
- g) use graphics
- h) use mail merge
- i) print documents

15.1.4P1      Opening a word processor

15.1.4P2      Creating a document

15.1.4P3      Editing a document



- 15.1.4P4 Formatting a document
- Character formatting
  - Paragraph formatting
  - Page formatting
- 15.1.4P5 Creating columns
- Create columns
  - Manipulate columns
- 15.1.4P6 Creating tables
- Ways of creating tables
  - Entering data
  - Resizing
  - Editing tables
  - Enhancing tables
  - Performing calculations
- 15.1.4P7 Using graphics
- Inserting pictures
  - Drawing objects
  - Crating and editing textbooks
- 15.1.4P8 Using mail merge
- Main document
  - Data source
  - Merging

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15.1.4P9 Printing documents

## 15.1.5 SPREAD SHEETS

### THEORY

15.1.5T0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) define the meaning of spread sheet
- b) discuss areas where spread sheets are sued
- c) demonstrate worksheet layout
- d) describe how to build and save a worksheet
- e) manipulate date on a spreadsheet
- f) demonstrate how to use formulae and functions on a spreadsheet

15.1.5T1 Meaning of spread sheet

- 15.1.5T2 Areas where spreadsheets are used
- 15.1.5T3 Worksheet layout
- 15.1.5T4 Building and saving worksheet
- 15.1.5T5 Data manipulation on a spreadsheet
- 15.1.5T6 Using formulae and functions on a spreadsheet

### **PRACTICE**

#### **15.1.5P0 Specific Objectives**

By the end of this topic the trainee should be able to:

- a) open a spreadsheet package
- b) create a document
- c) edit a worksheet
- d) format a worksheet
- e) perform calculations
- f) create charts
- g) print documents

- 15.1.5P1 Opening a spreadsheet package
- 15.1.5P2 Creating a document
- 15.1.5P3 Editing a worksheet
- 15.1.5P4 Performing calculations
- types of formulas
  - rules of entering formulas
  - copying and moving of formulas
  - cell references
  - entering a function
- 15.1.5P5 Creating charts
- 15.1.5P6 Printing documents
- printing a worksheet
  - printing a selection

## 15.1.6

## DATA PROCESSING AND DATA SECURITY

### THEORY

#### 15.1.6T0

#### Specific Objectives

By the end of this topic, the trainee should be able to:

- a) define data and data processing
- b) describe the data processing cycle
- c) describe data processing modes
- d) explain elements of data hierarchy
- e) describe file organization and access methods
- f) explain database and related terminologies
- g) describe threats and hazards to data
- h) explain methods of securing data
- i) explain health and safety issues in a computer environment

#### 15.1.6T1

Definition of terms

- Data
- Data processing

#### 15.1.6T2

Data processing cycle

#### 15.1.6T3

Data processing modes

- Online data processing
- Real time
- Batch processing
- Time sharing
- Multi tasking
- Distributed multi processing

#### 15.1.6T4

Elements of data hierarchy

#### 15.1.6T5

File organization and access methods

- File organization methods
- File access methods

#### 15.1.6T6

Database and related terminologies

- Definition of database
- Data types
  - Text
  - Numeric
  - Memo
  - Currency
  - OLE object
  - Yes/No



- Date/time

- Features of databases
  - Field
  - Record
  - File database
  - Field properties
  - Key field
- Role of databases

15.1.6T7 Threats and hazards of data

- Power failure
- Fire
- Natural disasters
- Environmental hazards
- Viruses
- Worms
- Theft
- Cyber crime
- Sabotage

15.1.6T8 Methods of securing data

- UPS
- Surge suppressors
- Backups
- Burglar proofing
- Antivirus software
- Passwords
- Biometric access

15.1.6T9 Health and safety issues in computer environment (ergonomics)

- Computer room furniture
- Sitting posture
- Positioning of computer accessories
- Lighting and glare

15.1.7 **COMPUTER NETWORKS**

15.1.7TO **Specific Objectives**

By the end of this topic, the trainee should be able to:

- a) define a computer network
- b) identify network components
- c) identify types of networks
- d) describe network topology

- e) explain the need for network security
- f) discuss the impact of network

15.1.7T1 Definition of computer networks

15.1.7T2 Network components

- routers
- bridges
- hubs
- firewalls
- cables
- switches
- servers

15.1.7T3 Types of networks

- Local Area Network (LAN)
- Wide Area Network (WAN)
- Metropolitan Area Network (MAN)

15.1.7T4 Network topologies

15.1.7T5 Need for network security

15.1.7T6 Impact of networks

## 15.1.8 PRESENTATION PACKAGES

### THEORY

15.1.8T0 Specific Objectives

By the end of this topic, the trainee should be able to discuss various types of presentation packages

15.1.8T1 Types of presentation packages

### PRACTICE

15.1.8P0 Specific Objectives

By the end of this topic, the trainee should be able to:

- a) open a presentation package
- b) create slides
- c) format slides
- d) run slides

- e) edit objects
- f) printing slides and handouts

15.1.8P1      Opening a presentation package

- 15.1.8P2      Creating slides
- using templates
  - using auto content wizard
  - using a blank presentation

15.1.8P3      Formatting slides

- 15.1.8P4      Editing objects
- tables
  - charts
  - graphics
  - pictures
  - other objects

15.1.8P5      Printing slides and handouts

## 15.1.9      **INTERNET AND WORLD WIDE WEB**

### **THEORY**

15.1.9T0      **Specific Objectives**

By the end of this topic, the trainee should be able to:

- a) explain the term internet and world of web
- b) explain the applications of the Internet
- c) discuss the impact of the internet in the business environment
- d) explain the challenges in the use of the Internet in the business environment
- e) explain the need for the Internet security

15.1.9T1      Introduction to Internet and world of web

- Definition of Internet
- History of the Internet
- Web related Terminologies

15.1.9T2      Applications of the Internet

15.1.9T3      Challenges in the use of the internet in the business environment

15.1.9T4      Impact of the Internet in the business environment



15.1.9T5 The need for internet security

### **PRACTICE**

**15.1.9P0 Specific Objectives**

By the end of this topic, the trainee should be able to:

- a) open the browser
- b) surf the net
- c) create e-mail accounts
- d) use e-mail
- e) use search engines
- f) print documents

15.1.9P1 Opening the browser

15.1.9P2 Surfing the net

15.1.9P3 Creating e-mail accounts

15.1.9P4 Use e-mail

- creating e-mail messages
- sending and receiving e-mail messages
- attaching files to e-mail messages
- using the address book

15.1.9P5 Using of search engines

15.1.9P6 Printing documents

**15.1.10 EMERGING TRENDS IN COMPUTER TECHNOLOGY**

**15.1.10T0 Specific Objectives**

By the end of this topic, the trainee should be able to:

- a) identify new developments in ICT
- b) explain the challenges posed by new trends in ICT
- c) identify ways of coping with new trends in ICT
- d) discuss the impact of emerging trends in ICT to business

15.1.10T1 New developments in ICT

15.1.10T2 Challenges posed by new trends in ICT

15.1.10T3 Ways of coping with new trends in ICT

15.1.10T4  
15.1.7.1

Impact of emerging trends in ICT to business  
Emerging trends in capacity building and empowerment

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