18.2.4. VISUAL PROGRAMMING (190 HOURS)

18.2.4.01 INTRODUCTION

This module unit is intended to provide the trainee with knowledge and skills to develop programs in visual programming Languages.

18.2.4.02 GENERAL OBJECTIVES

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

a) apply programming skills in visual basic
b) understand the various data types, control structures and data structures used in object oriented programming
c) develop object oriented programs

18.2.4.03 VISUAL PROGRAMMING

NB: APPROPRIATE TEACHING LANGUAGES - VISUAL BASIC

CODE	TOPIC	SUBTOPIC	HOURS T	HOURS P	TOTAL
18.2.4.1	INTRODUCTION TO VISUAL PROGRAMMING LANGUAGES	• visual programming • example of visual programming languages • hardware and software considerations for visual programming	4		4
18.2.4.2	VISUAL ENVIRONMENT	• description of visual environment • integrated development environment • visual objects	4	8	12
18.2.4.3	PROGRAM STRUCTURE	• format of a visual program • data types • operators • variables	4	4	4
18.2.4.4	PROGRAM WRITING	• creating an application • compilation • debugging • testing • execution	2	14	16
18.2.4.5	CONTROL STRUCTURES	• types of control structure • implementation of control structures	2	8	10
18.2.4.6	ERROR HANDLING	• types of errors • error handling techniques	2	6	8
18.2.4.7	SUB-PROGRAMS	• meaning of subprograms • types of subprograms • scope of variables	4	6	10
18.2.4.8	DATA STRUCTURES	• data structures • types of data structures • sort techniques • search techniques	4	10	13
18.2.4.9	LINKING TO DATABASES	• database controls • reports	8	12	20

CODE	TOPIC	SUBTOPIC	HOURS T	HOURS P	TOTAL
18.2.4.10	EMERGING TRENDS IN VISUAL PROGRAMMING	• emerging trends in visual programming • challenges of emerging trends in visual programming	2	2	2

18.2.4.1T INTRODUCTION TO VISUAL PROGRAMMING LANGUAGES

THEORY

18.2.4.1.T0 Specific Objectives

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

a) describe visual programming
b) identify different examples of visual programming languages
c) describe hardware and software considerations for visual programming

CONTENT

18.2.4.1.T1 Description of Visual programming

18.2.4.1.T2 Example of Visual programming languages

Visual basic
Visual C++
Delphi

18.2.4.1.T3 Hardware and software considerations for visual programming

18.2.4.2T VISUAL ENVIRONMENT

THEORY

18.2.4.2.T0 Specific Objectives

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

a) describe visual environment
b) describe integrated development environment
c) describe various Visual objects

CONTENT

18.2.4.2.T1 Description of Visual Environment

event driven environment

18.2.4.2.T2 Description of Integrated development environment

18.2.4.2.T3 Visual objects

types of controls
form window
properties window
immediate window
code window
others

PRACTICE

18.2.4.2.P0 **Specific Objectives**

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

a) create visual environment with object

CONTENT

18.2.4.2.P1 Creating visual environment

18.2.4.3T PROGRAM STRUCTURE

THEORY

18.2.4.3.T0 **Specific Objectives**

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

a) describe format of a visual program
b) explain different data types
c) explain various data operators
d) explain variable declaration

CONTENT

18.2.4.3.T1 Format of a visual program

18.2.4.3.T2 Data types

18.2.4.3.T3 Data operators

arithmetic
logical
comparison
others

18.2.4.3.T4 Variable declaration

18.2.4.4T PROGRAM WRITING

THEORY

18.2.4.4.T0 Specific Objectives

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

a) define program writing terminologies

CONTENT

18.2.4.4.T1 Defining program writing terminologies

PRACTICE

18.2.4.4.T0 Specific Objectives

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

a) build a program
b) compile a program
c) debug a program
d) execute a program in visual basic

18.2.4.4.P1 Building programs

18.2.4.4.P2 Compilation

18.2.4.4.P3 Debugging

18.2.4.4.P4 Execution

18.2.4.5T CONTROL STRUCTURES

THEORY

18.2.4.5.T0 Specific Objectives

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

a) explain control structures
b) describe different types of control structures
c) implement control structure

CONTENT

18.2.4.5.T1 Definition of control structures

18.2.4.5.T2 Types of Control structure

sequence

selection

iteration/repetition

PRACTICE

18.2.4.5.P0 **Specific Objectives**

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

a) implement control structure

CONTENT

18.2.4.5.P1 Implementation of control structures

18.2.4.6T ERROR HANDLING

THEORY

18.2.4.6.T0 **Specific Objectives**

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

a) identify different types of errors

b) describe error handling techniques

CONTENT

18.2.4.6.T1 Types of errors

syntax

run time

semantics

logical

18.2.4.6.T2 Error handling techniques

writing error handlers

- on error go to
- on error resume
- err object

debugging tools

18.2.4.7T SUB-PROGRAMS

THEORY

18.2.4.7.T0 Specific Objectives

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

a) describe sub-programs
b) describe various types of subprograms
c) describe the scope of variables

CONTENT

18.2.4.7.T1 Description of Sub-programs

18.2.4.7.T2 ypes of Sub-programs

private sub-programs
public sub-programs

18.2.4.7.T3 Scope of variables

local variables
global variables

PRACTICE

18.2.4.7.P0 Specific Objectives

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

a) write a sub-program

CONTENT

18.2.4.7.P1 Writing sub-programmes

18.2.4.8T DATA STRUCTURES

THEORY

18.2.4.8.T0 Specific Objectives

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

a) explain the meaning of data structures
b) describe different types of data structures
c) describe various sort techniques
d) describe various search techniques

CONTENT

18.2.4.8.T1 Description of data structures

18.2.4.8.T2 Types of data structures

arrays

- one dimensional
- two dimensional

18.2.4.8.T3 Sort techniques

bubble

shell

18.2.4.8.T4 Search techniques

binary search

PRACTICE

18.2.4.8.P0 **Specific Objectives**

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

a) implement data structures

b) b) implement search and sort techniques

CONTENT

18.2.4.8.P1 Implementing data structure

18.2.4.8.P2 Implementing search and sort techniques

18.2.4.9T LINKING TO DATABASES

THEORY

18.2.4.9.T0 **Specific Objectives**

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

a) apply database controls

b) create reports

CONTENT

18.2.4.9.T1 Database controls

Data Control

MS Data bound Controls

Active Data Object(ADO)

18.2.4.9.T2 Reports

data report

PRACTICE

18.2.4.9.P0 **Specific Objectives**

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

a) apply database controls
b) create data report

CONTENT

18.2.4.9.P1 Applying database control

18.2.4.9.P2 Creating data report

18.2.4.10T EMERGING TRENDS IN VISUAL PROGRAMMING

THEORY

18.2.4.10.T0 Specific Objectives

By the end of this topic, the trainee should be able to:
a) identify emerging trends in visual programming
b) describe challenges of emerging trends in visual programming
c) cope with challenges of emerging trends in visual programming

CONTENT

18.2.4.10.T1 Emerging trends in visual programming

18.2.4.10.T2 Challenges of emerging trends in Visual programming

18.2.4.10.T3 Coping with challenges of emerging trends in visual programming

TEACHING/LEARNING RESOURCES

Relevant text books and free e-books
www contents
Sample codes from www contents
Visual programming languages

ASSESSMENT MODE

Written tests
Practical tests
Program project development
Oral tests