

University College of the Cayman Islands

ASSOCIATE DEGREE SYLLABUS

COURSE NAME: COMPUTER PROGRAMMING I

COURSE #: COM 200

COURSE DESCRIPTION

The purpose of this course is to introduce the fundamental principles of programming using an object-oriented event-driven programming language such as Visual Basic. Topics include programming projects using visual programming development environments, interface design and code techniques.

Credits: 3

Prerequisite: COM 110 OR EQUIVALENT

COURSE OBJECTIVES

This course is intended to enable the student to be able to:

1. Understand the syntax and programming environment of a visual programming language.
2. Learn and apply fundamental programming control structures
3. Understand object types and apply them in an object-oriented/event-driven application.
4. Develop and apply a menu driven application.
5. Implement the techniques for file and database progressing.
6. Construct, test and implement a Windows-based application system.

COURSE OUTLINE

I GENERAL FEATURES OF OBJECT-ORIENTED PROGRAMMING

Object-Oriented/Event-Driven Programming Languages

Working the desktop programming environment -

- Main Window, Form Window
- Toolbox Window, Project Window
- Properties Window

Understanding and creating Projects

Managing Projects

II VARIABLES, CONSTANTS, AND DATA TYPES

Declarations and initialization

Scope and lifetime of variables

Fundamental Variable Data Types

Arrays - default limits and re-initialization

Symbolic Constants

III MANIPULATING OBJECTS

An understanding of Objects and Controls

Arranging Controls on the screen

Understanding and use of Objects Types

- Text Box, Combo Box, Command Button, Check Box,

- Form, Label, List Box, Option Button, Picture, Frame

Relating Objects types to Controls

Defining Objects and their Properties

IV MANIPULATING OBJECTS

An understanding of Objects and Controls

Arranging Controls on the screen

Understanding and use of Objects Types

- Text Box, Combo Box, Command Button, Check Box,

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Relating Objects types to Controls

Defining Objects and their Properties

V DISPLAYING AND PRINTING INFORMATION

Fundamentals of fonts

Displaying text in Forms and Picture Boxes

Displaying Tabular output

Formatting techniques for Numbers, Dates, and Time

Techniques for generating printed output

Printing using the Printer Object and Method

VI OBJECTS AND FORM DESIGN

An understanding of Object Variables

Declaration of Object Variables

Scope and lifetime of Object Variables

Object Types - Form, Control, Multiform

Multiple Instances

VII PROGRAMMING CONTROL STRUCTURES

Selection structure - simple and nested If .. Then .. Else

Select Case structure

Repetition structures

- For ... Next, Do ... While, and Do ... Until loops

Application of control structures in Event Procedures

VIII PROCESSING FILES AND DATABASES

Understanding of Sequential and Random Access types

Declaration of files

Opening, Editing, and Writing file types

Database Design and Structuring

Opening, Editing and Writing a Database

Working with Bound Controls

Controlling Transactions, Validation, and Data Updates

IX MENUS DESIGN TECHNIQUES

Creating Menus at design time
Using the Menu Design Window
Creating and Menu Controls
Controlling Menus at run-time

X DIALOG BOXES

Types of Dialog Boxes
Design and Displaying of Dialog Boxes
Modal and Modeless Dialog Boxes
Customizing Dialog Boxes - command buttons

XI STRING MANIPULATION

String Declaration
Conversion to uppercase and lowercase letters
String Concatenation
Formatting of strings
Functions facilitating string manipulation

XII ERROR-HANDLING TECHNIQUES

Design techniques for anticipated errors
Getting error messages and error-status data
Trapping and simulating run-time errors
Centralizing Error-Handling in an application system

XIII BUILT-IN FUNCTIONS

Number to String conversion
Conversion among data types
String to NT number conversion
ANSI value to String conversion

ASSESSMENT

Course Assignments/Projects	-	30%
Mid-Semester Examination	-	20%
Final Examination	-	50%
Total	-	100%

REQUIRED TEXT

The following textbook(s) will be used for this course:

1. Deitel, Deitel, Deitel , *Visual Basic 2005: How to program* ISBN:0-13-186900-0

References

Schneider, David I, *An Introduction to Programming using Visual Basic*, Prentice Hall, 1995.
Gurewich Nathan, Gurewich Ori, *Visual Basic*, Sams Publishing, 2nd Edition, 1995.

Zak, Diane, Programming with Microsoft Visual Basic for Windows, Course Technology Inc., 1st Edition, 1995.