



# Broward Community College

## Course Outline

STATUS:   A  

COMMON COURSE NUMBER:   COP 2821C  

COURSE TITLE:   Visual Basic Development  

CREDIT HOURS:           3          

**CONTACT HOURS BREAKDOWN:**

Lecture/Discussion           48          

Lab                   16          

Other                   00          

Contact Hours/Week           4          

**CATALOG COURSE DESCRIPTION:**

Prerequisite: COP 2171C

Corequisite: None

This course focuses on how to create an Active X control, how to create a component object modes (COM), how to incorporate Active X and COM components within a Visual Basic program, how to write Visual Basic programs that access a database, and how to incorporate Internet technologies into a Visual Basic application.

General Education Requirements - Associate of Arts Degree, meets Area(s):  
 General Education Requirements - Associate in Science Degree, meets Area(s):

**UNIT TITLES:**

1. Essentials of Visual Basic
2. Using Visual Data Access Tools
3. Using Class Modules
4. Building ActiveX Controls
5. Using ActiveX Data Objects
6. Advanced Data Access Issues
7. Using COM Components
8. Building COM Components
9. Optimizing and Deploying an Application
10. Building Internet Applications

## **I. Course Overview:**

- Upon successful completion of this course, the students should be able to:
- write a Visual Basic-based application that accesses data from a database.
- write a Visual Basic-based application that uses component object model (COM) components; create an ActiveX control.
- create a COM component.
- list the opportunities that Visual Basic developers have to incorporate Internet technologies into their applications.

## **II. Units:**

### **Unit 1. Essentials of Visual Basic**

#### General Outcome:

- 1.0 The students should be able to explain the essential concepts of the Visual Basic programming language and write a simple Visual Basic application.

#### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 Use Visual Basic to create a simple application and an executable file for users.
- 1.2 List the files that comprise a Visual Basic-based application.
- 1.3 Use the Visual Basic debugging tools.
- 1.4 Add run-time error handling to a procedure.

## Unit 2. Using Visual Data Access Tools

### General Outcome:

2.0 The students should be able to describe visual data access tools, create database queries, data-bound forms, and data reports.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 2.1 Describe the visual data access tools that come with Visual Basic.
- 2.2 Use the visual data access tools to create a connection to a data source and access data from the connection in an application.
- 2.3 View the structure of a database using the Data Environment designer and the Data View window.
- 2.4 Create database queries using Query Builder.
- 2.5 Create data-bound forms using the Data Environment designer, Data Form Wizard, and the ADO Data control.
- 2.6 Create a report using the Data Report designer.

## Unit 3. Using Class Modules

### General Outcome:

- 3.0 The students should be able to use class modules in an application and use class components to create COM components.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 3.1 Explain the benefits of using class modules in an application.
- 3.2 Use a class module to create a COM component within a Visual Basic project.
- 3.3 Create a COM component that exposes properties, methods, and events.
- 3.4 Create and use data-bound class modules.

## Unit 4. Building ActiveX Controls

### General Outcome:

4.0 The students should be able to describe, develop, test, and debug ActiveX controls.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 4.1 Describe the benefits of using ActiveX controls.
- 4.2 Create an ActiveX control that exposes properties, methods, and events.
- 4.3 Use control events to save and load persistent properties.
- 4.4 Test and debug and ActiveX control.
- 4.5 Create and enable property pages for an ActiveX control.
- 4.6 Enable the data-binding capabilities of an ActiveX control.
- 4.7 Create an ActiveX control that is a data source.

## Unit 5. Using ActiveX Data Objects

### General Outcome:

5.0 The students should be able to describe ActiveX data objects (ADO), use ADO to handle errors, and retrieve and manipulate data.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 5.1 List the major components of the ADO object model.
- 5.2 Explain how to handle errors using ADO.
- 5.3 Connect to a data source using ADO.
- 5.4 Use an ADO record-set object to retrieve and manipulate data.
- 5.5 Describe and use a disconnected record set.
- 5.6 Use an ADO record-set object to store non-database data.

## Unit 6. Advanced Data Access Issues

### General Outcome:

6.0 The students should be able to discuss advanced concepts in data access, including security, cursor issues, and data integrity.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 6.1 Discuss SQL Server security implementations.
- 6.2 Describe different cursor locations and when to use a specific cursor type.
- 6.3 Use a stored procedure to execute a statement on a database.
- 6.4 Handle referential integrity errors.
- 6.5 Describe ways to enforce data integrity.

## Unit 7. Using COM Components

### General Outcome:

7.0 The students should be able to use COM components in Visual Basic-based applications.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 7.1 List the main steps required to use an external COM component in a Visual Basic-based application.
- 7.2 Create a Visual Basic-based client application that uses a COM component.
- 7.3 Create a Visual Basic-based application that handles events from a COM component.
- 7.4 Create a Visual Basic-based application that automates Internet Explorer.

## Unit 8. Building COM Components

### General Outcome:

8.0 The students should be able to build, debug, and test COM components.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

8.1 Compile a project with class modules into a COM component.

8.2 Create an object model in a COM component.

8.3 Debug and test a COM component.

## Unit 9. Optimizing and Deploying an Application

### General Outcome:

9.0 The students should be able to optimize and deploy an application.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

9.1 Describe a variety of techniques for optimizing the performance of an application.

9.2 Use the GetSetting and SaveSetting statements to save application-specific information to the registry

9.3 Use resource files.

9.4 Create a Setup program using Package and Deployment Wizard.

9.5 Package an ActiveX control for use of a Web site.

## Unit 10. Building Internet Applications

### General Outcome:

10.0 The students should be able to build Internet applications using the DHTML Page designer, the Webclass designer and the WebBrowser control.

### Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 10.1 List the ways Visual Basic can enhance a Web site.
- 10.2 Create application that use the WebBrowser control.
- 10.3 Explain what Active Documents are.
- 10.4 Create an Active Document.
- 10.5 Use the DHTML Page designer to create client-side code components.
- 10.6 Use the Webclass designer to create server-side code components.