Miami Dade
College

Course Description
COP2333 | Advanced Programming Concepts using Visual Basic | 4.00 credits
This course provides Microsoft Visual Basic developers with the knowledge and skills needed to develop Microsoft.
Net-based applications using Visual Basic. NET. Students use advanced programming and object oriented tools to
create enterprise applications for the .NET Platform and to create more traditional Visual Basic applications that take
advantage of the enhancements to the language. Prerequisite: COP1332.

Course Competencies:
Competency 1: The student will demonstrate an understanding of the Microsoft .NET platform by:
1. Listing the main elements of the .NET Platform.
2. Describing the .NET Framework and its components.
3. Listing the significant enhancements to Visual Basic .NET

Competency 2: The student will demonstrate an understanding of the .Net development environment features by:
1. Describing the overall benefits of the new IDE.
2. Describing the different types of Visual Basic.NET
3. Describing project components and their structures, including their file structures.
4. Referencing external applications from a project.
5. Viewing and setting the properties of a project.
6. Using the various windows in the IDE, including Server Explorer, the object browser, and the task
7. Listing to create and debug a project.
8. Debugging a simple application.
9. Building and compiling a simple application.

Competency 3: The student will demonstrate an understanding of the .NET language and syntax enhancements by:
1. Describing the changes to data types in Visual Basic .NET.
2. Declaring and initializing variables and arrays.
3. Using shorthand syntax to assign values to variables.
4. Implementing functions and subroutines.
5. Calling the default properties of an object.
6. Using the new "Try…Catch…Finally" statement to implement structured exception handling.

Competency 4: The student will demonstrate an understanding of object-oriented design for Visual Basic.NET by:
1. Describing the basics of object-oriented design.
2. Explaining the concepts of encapsulation, inheritance, interfaces, and polymorphism.
3. Defining classes.
4. Creating classes based on Using cases.
5. Using Visio to model classes in Visual Basic. NET.

Competency 5: The student will demonstrate how to apply principles of object-oriented programming in Visual
Basic.NET by:
1. Instantiating objects from classes.
2. Using objects in client code.
3. Creating classes that use inheritance.
4. Defining interfaces and using polymorphism.
5. Creating shared members.
6. Creating class events and handling them from a client application.

Competency 6: The student will demonstrate an understanding of how to use Windows Forms by:
1. Describing the benefits of Windows Forms.
2. Using the new properties and methods of Windows Forms.
3. Writing event-handling code.
4. Using the new controls and control enhancements to improve the performance and capability of a project.
5. Adding and editing menus.
6. Adding and editing toolbars and status bars.
7. Adding help files to programs.
8. Creating a form that inherits from another form.

Competency 7: The student will demonstrate an understanding of how to build multiple-tier applications using classes by:
1. Listing the benefits of multiple-tier applications.
2. Identifying and describing the three basic tiers.
3. Creating applications by using classes to implement multiple-tier applications.
4. Creating reusable objects.

Competency 8: The student will demonstrate an understanding of how to process sequential text files by:
1. Listing the structure of sequential test files.
2. Identifying and describing the stream reader and stream writer objects.
3. Using advanced string manipulation for processing sequential text file fields.
4. Creating applications to create, update, and read sequential text files.

Competency 9: The student will demonstrate an understanding of how to use ADO.NET by:
1. Listing the benefits of ADO.NET.
2. Listing the main ADO.NET objects and their functions.
3. Creating applications by using ADO.NET.
4. Explaining how XML integrates with ADO.NET.
5. Using Visual Studio .NET data designers and data binding.

Competency 10: The student will demonstrate the ability to develop components in Visual Basic.NET by:
1. Creating components that managed and unmanaged client applications can use.
2. Creating serviced components.
3. Creating component classes.
4. Creating Windows Forms controls.
5. Using threading to create multi-threaded applications.
6. Creating class libraries.
7. demonstrate an understanding of issues relating to upgrading to Visual Basic.NET
8. Describe the various upgrade options available.
9. Analyzing specific job requirements and recommending whether or not to upgrade an application.

Learning Outcomes:
1. Communication
2. Information Literacy
3. Computer/ Technology Usage