Computer Programming Department
Business/Public Service Division
GREENVILLE TECHNICAL COLLEGE

COURSE SYLLABUS

Course Title: Visual Basic.Net II
Course Number: CPT 286

Lecture hours per week: 3.0 **Lab/Clinic Hours:** **Semester credit hours:** 3.0

Prerequisite: CPT 186

Catalog Course Description: This course is a study of advanced techniques for Visual Basic programming using the Microsoft.Net framework.

Purpose of the Course: This course is a study of advanced techniques for Visual Basic programming using the Microsoft.Net Framework.

Required text(s) or other materials:

1. Advanced Programming Using Visual Basic 2008, 4th Edition; Bradley and Millspaugh; McGraw – Hill Publishing; ISBN: 978-0-07-351722-3
2. A USB portable storage device such as a flash drive will be needed for coursework storage.
3. There are several assignments that will require the use of Visual Studio.Net Professional 2008, not the student version. The software is available through ELMS.
4. NOTE: Students in traditional classes must access Blackboard for course-related information. Students in hybrid and online classes will access their online content through Blackboard.

COLLEGE-WIDE STUDENT LEARNING OUTCOMES

1. Communication – Students will demonstrate the ability to use active reading and listening skills and to produce effective written and oral communication for varying audiences.

2. Information Technology and Technological Literacy – Students will demonstrate competency in using computer technology within a field of study.

3. Critical Thinking/Reasoning – Students will demonstrate the ability to apply the scientific method, mathematical processes, and research skills to analyze and solve problems/issues by using reflection and reasoning to justify conclusions.

4. Professional and Personal Responsibility – Students will demonstrate the ability to exhibit conduct, attitudes, and etiquette appropriate to the student's community and chosen career. Students will demonstrate the ability to manage time, to use effective interpersonal skills, and to display responsible behavior.

5. Diversity – Students will demonstrate the ability to recognize diversity and to demonstrate respectful conduct and attitudes toward all. Students will demonstrate the ability to explain how global issues impact life, work, and opportunities.

Approved March 26, 2009

COMPUTER PROGRAMMING PROGRAM STUDENT LEARNING OUTCOMES

Upon successful completion of the CPT/Programming program, the graduate will be able to:

1. Students will be able to analyze, design, develop, and document solutions that will satisfy the information needs of business users using established design methodologies and standards.
2. Students will be able to design, create, test, and document logical programming solutions to prescribed specifications following established standards and using current development environments and languages for application development and database management.
3. Students will be able to demonstrate the knowledge and ability to install and maintain microcomputer hardware and operating system software.
4. Students will be able to demonstrate the use of a minimum of three business application software packages.
5. Students will be able to demonstrate fundamental team building, project management, and presentation skills by participating in team projects that include team goals and values, a development methodology for documentation and coding, group presentations, and exposure to topics such as diversity, time management, and goal setting.
6. Students will be able to demonstrate the ability to take initiative, assume responsibility, and work under pressure with minimum supervision by successfully completing "hands-on" computer lab assignments.

CPT 286 COURSE OUTCOMES

Students who successfully complete this course will have demonstrated the skills required to accomplish the following objectives with a minimum competence level of 70 percent.

1. Students will be able to demonstrate the ability to take initiative by completing a lab assignment with minimal supervision.
2. Students will be able to demonstrate the ability to work under pressure, and show responsibility by completing lab assignments.
3. Students will be able to demonstrate knowledge of MDI applications by completing an MDI lab assignment.
4. Students will be able to demonstrate knowledge of multitier applications using classes that handle exceptions by completing a multitier lab assignment.
5. Students will be able to demonstrate knowledge of ADO.NET components by completing a database application lab assignment.
6. Students will be able to demonstrate knowledge of processing data stored in related tables of a database by completing a lab assignment that retrieves and displays data in stored in related tables.

7. Students will be able to demonstrate knowledge of updating tables in a database application by completing a lab assignment that processes data using add, save, delete, cancel, and edit logic on the records in a database.
8. Students will be able to demonstrate the ability to design, create, and test a GUI (Graphical User Interface) programming solution according to a specified set of instructions by completing a lab project in Visual Basic.NET that incorporates collections that add, remove, retrieve and display items from a collection and incorporates help files and context-sensitive Help into the project using HTML Help Workshop.

The objectives of the CPT 286 course are intended to meet the CPT/Programming program competencies numbered 2 and 6 above.

CPT 286 – Main Topics

Tutoring is now available in the Business Division Student Lab located on the Barton Campus in the Engineering Building (#103), Room 115. The hours for tutoring are posted in the lab (ET 115); no appointment is necessary. There are no fees required for this service.

Week 1:

Introduction Assignment Due

Chapter 1 –Visual Studio and the .NET Framework

- The .NET Framework: The Common Language Runtime, Class Library, Compiling to intermediate language, Assemblies and References Collection in ASP.NET
- Visual Studio: Temporary projects, Setting Environment options, The Solution Explorer, Partial classes, The Project Designer, Deploying Windows applications
- The VB My Objects
- Using Assembly Information: Setting the Assembly Information, Retrieving the Assembly Information, Viewing a program's attributes
- Menus, Toolbars, and Status Bars: Creating menus with Menu Strips, Creating context menus with Context Menu Strips, Creating toolbars with ToolStrips, Creating status bars with StatusStrips
- MDI Applications: Multiple Document Interface, Creating an MDI project, Adding a Window menu, The Singleton Design Pattern, Splash Screen Forms, About Box Forms
- Class Diagrams: Creating a class diagram, Customizing a class diagram
- Your Hands-On Programming Example

Week 2:

Chapter 1 Assignment Due

Chapter 2 – Building Multitier Programs with Classes

- Object-Oriented Programming: OOP terminology, Reusable objects, and Multitier applications
- Creating Classes: Designing your own class, Creating properties in a class, Constructors and destructors, A basic business class, Throwing and catching exceptions, Alternatives to exception handling, Modifying the user interface to validate at the field level, Modifying the business class, Displaying the summary data

- Namespaces, Scope, and Accessibility: Namespaces, Scope, Lifetime, Accessibility domains
- Creating Classes that Inherit: Adding a new class file, Creating a constructor, Inheriting variables and methods, Using properties and methods of the Base Class
- Passing Control Properties to a Component: Creating an enumeration
- Garbage Collection
- Your Hands-On Programming Example

Week 3:

Chapter 2 Assignment Due

Week 4:

******* Test 1 *******

Chapter 3 – Windows Database Applications

- Visual Studio and Database Applications: ADO.NET, Accessing data in the .NET Framework, XML data, and The Visual Studio IDE
- Creating a Database Application: Local database files, Creating a Windows database application step-by-step, Displaying data in individual fields - Step-by-Step, Selecting the control type for details view, Setting the captions for database fields, Formatting Bound Data
- Selecting a Record from a List: Populating Combo Boxes with data, Adding a Combo Box for selection step-by-step, Adding an expression to concatenate fields, Adding a concatenated field step-by-step
- Sorting the Data for the ListBox: Sorting with the BindingSource, Modifying the SQL Select statement, Eliminating unnecessary SQL queries
- Using a Stored Procedure: Creating a stored procedure in the VS IDE, Retrieving data by using a stored procedure
- Multiple Tiers: Creating a data tier component, Coding the form's database objects, Binding data fields to form controls, Creating a Data Tier step-by-step
- Your Hands-On Programming Example

Week 5:

Chapter 3 Assignment Due

Chapter 4 – Windows Database Using Related Tables

- Data Relationships: One-to-many relationships, Many-to-many relationships, One-to-one relationships, and Constraints
- Related Tables: Creating a dataset with more than one table, Displaying Master/Detail records step-by-step, Viewing or setting a relationship, and Creating a table lookup step-by-step
- Queries and Filters: Using a parameterized query, Creating a parameterized query step-by-step, Filtering a dataset, Filtering a dataset step-by-step
- Unbound Data Fields: Referring to records and fields, Retrieving a related parent row, Retrieving related child rows
- Many-to-Many Relationships: Retrieving matching rows, the Title by Author M:N Program
- Multier Considerations: Formatting a grid at run time
- Your Hands-On Programming Example

Week 6:

Chapter 4 Assignment Due

Week 7:

***** Test 2 *****

Chapter 5 – Windows Database Updates

- A Simple Update in a Grid: Updating a dataset, Database handling in the Visual Studio IDE
- The Data Objects, Methods, and Properties: The TableAdapter and TableAdapterManager
- The Binding Source Object: Binding Source properties and methods, Binding Source update methods, Binding Source events
- DataSet Updating: SQL statements for updates, Concurrency, Testing update programs
- Updating a DataSet in Bound Controls: The logic of an update program, User options during an update, The add and save logic, The delete and cancel logic, The edit logic, A complete update program, Navigating from a Combo Box selection
- Validating User Input Data: Checking for nulls, Adding validation to a details view program, Adding validation to the DataSet for a DataGridView program
- Handling Data Exceptions: The DataGridView DataError event, The BindingSource DataError event
- Updating Related Tables: Parent and child relationships, Hieratchical Updates, A related table update program step-by-stepSecurity Considerations
- Your Hands-On Programming Example

Week 8:

Chapter 5 Assignment Due

Chapter 6 –Services

- Concepts and Terminology
- Window Communication Foundation (WCF): XML, SOAP, WSDL, More acronyms
- Creating a WCF Service: Create a Hello World service – step-by-step, Testing a service – step-by-step Consuming a WCF Service: Create a project to consume the service – step-by-step Performing Calculations in a WCF Service
- Accessing Data through a WCF Service: Creating a data WCF service - step-by-step, The DataSet Merge method, Placing validation and access code in the Data-Tier projects, Writing validation code, Setting properties of the DataSet fields Working with Related Tables
- Your Hands-On Programming Example

Week 9:

Chapter 6 Assignment Due

Chapter 12 – Creating Help Files

- HTML Help Workshop: Setting up Help, A Help facility: File types, Creating the files
- Creating a Help Facility: Creating a Help facility step-by-step
- Connecting the HTML Help File to an Application: Continuing the step-by-step exercise, Adding Help to a menu, Modifying Help files, Connecting context-sensitive Help topics to controls, Add a Help Button to a MessageBox, the Help button
- Other Forms of User Assistance

Week 10:

Short Chapter 12 Assignment Due

Week 11:

***** **Test 3** *****

Chapter 9 –Reports

- Writing Reports
- Creating and Displaying a Crystal Report: Creating a grouped report step-by-step, Displaying a report from a Windows form – step-by-step, Using the Report Designer, Modifying the products report step-by-step, Displaying a report from a Web form Selecting from multiple reports
- Your Hands-On Programming Example

Week 12:

Chapter 9 Assignment Due

Assign Lab Project (Chapter 10 and Chapter 12)

Chapter 10 –Collections

- Referencing Collection Items
- Systems.Collections Namespace: Using stacks, Using queues, Using hash tables, Sorted lists, Using the example program, Using array lists
- Creating a Collection of Objects: A collection of Student objects, Declaring a collection, Adding objects to a collection, Removing an element from a collection, Retrieving an element from a collection, Using For Each/Next, the completed program
- Using an Items Collection
- Generics: Generic classes and Generic collections
- Your Hands-On Programming Example

Week 13:

Paper on the translation services for Visual Studio in foreign countries Due

Chapter 11 – User Controls

- Windows User Controls: The control author verses the developer, Creating a new control, Inheriting from an existing control, Creating an inherited user control step-by-step, Adding properties to a control, Adding events to a control, Putting it all together, Creating a composite user control
- Web User Controls: Creating a Web user control step-by-step
- Your Hands-On Programming Example

Week 14:

Chapter 11 Assignment Due

Week 15:

Lab Project Due

*****Comprehensive Final Examination *****

CPT 286 – Course Specific Requirements

There are no specific course requirements other than attachment 1.

CPT 286 – Evaluation and Grading Information

GRADING POLICY

- **Twenty (20) percent** of the final grade will be based on successful completion of programming assignments, a lab project, and a written assignment. **Penalties for inaccurate results will be assessed per assignment.**

  The written assignment is a one – two page paper on the translation services offered by Microsoft for Visual Basic.NET 2008 around the world. It is to include the countries VB.NET is available in, the languages Microsoft has translated VB.NET into, the type of translation services, if any, available from Microsoft or from 3rd party vendors for those languages for which VB.NET has not yet been translated into, and it should answer the following question: **What arrangements (if any) does Microsoft have in place for those countries other than English speaking countries whose programmers want to use Visual Studio.NET?** A rubric for assessment of the written assignment will be provided.

- **Fifty-five (55) percent** of the final grade will be based on Lecture/Lab quiz/test grade averages.
- **Twenty-five (25) percent** of the final grade will be based on the comprehensive final examination.

All assignments (i.e., labs, projects, research papers, etc.) for this course must be completed and submitted to the instructor by the due date established in order to receive credit for the assignment.

NOTE: ALL TESTS AND EXAMS ARE RETAINED BY THE INSTRUCTOR.

Final letter grades will be issued as follows:

A	=	90 - 100	points
B	=	80 - 89	points
C	=	70 - 79	points
D	=	60 - 69	points
F	=	0 - 59	points

READ THIS SYLLABUS CAREFULLY

You should read this syllabus carefully and ask your instructor about *any* aspects that you do not understand. The syllabus is an agreement between you and your instructor concerning course objectives, course content, grading, and other policies and procedures particular to this course. The above information is specific to the course. Three additional documents are provided as attachments and *are considered a part of this syllabus*:

Attachment I:

Each instructor will provide a supplement to this syllabus. The supplement will include: a week-by-week plan of instruction based on the section in which you are enrolled; your instructor's name, office hours and/or office location; and your instructor's contact information and recommended best methods to contact your instructor.

Attachment 2:

The Department responsible for developing and teaching has policies and procedures in place to assure quality instruction for all students. These are attached as "Departmental Policies and Procedures."

Attachment 3:

Please note that it is your responsibility to read the current Student Handbook included in Greenville Technical College's Catalog. (See website.) The Student Handbook addresses specific academic and student conduct policies and procedures. Excerpts from the Student Handbook representing the policies and procedures most often referred to in working with students are provided for your convenience as "Attachment 3."

Approved by: _____

Beau Sanders, Department Head, Computer Programming
Beau.Sanders@gvltec.edu, (864) 250-8314, Barton Campus, Building 103, Room 311

Approved by: _____

Mark Krawczyk, Assistant Dean, Business/Public Business
Mark.Krawczyk@gvltec.edu, (864) 250-8404, Barton Campus, Building 103, Room 304

Approved by: _____

Lenna C. Young, Dean, Business/Public Service
Lenna.Young@gvltec.edu, (864) 250-8204, Barton Campus, Building 103, Room 104

13 Dec 10
Date

This syllabus will remain in effect until revised or reviewed no later than August 2011.