**COURSE OUTLINE**

**Introduction to Visual Basic.NET**

**Course Description**
IN 108. Introduction to Visual Basic.NET. 3 hours credit. This course will enable the student to use structured programming techniques to develop applications using MS Visual Basic as their application development language. The student will practice program development within a GUI Graphical User Interface environment. Before enrolling in Introduction to Visual Basic.NET, the student should be competent in basic computer operation.

**Required Materials**

* - For complete material(s) information, refer to https://bookstore.butlercc.edu

**Supplemental Materials**
A copy of either the Microsoft Visual Basic.NET Professional Edition or the Microsoft Visual Studio.NET Software

**Butler-assessed Outcomes**
The intention is for the student to be able to
1. Convert business problems into programmable solutions via basic top-down, step-wise design techniques.
2. Use the Visual Basic language to implement and test solutions.
3. Identify the basic elements of object oriented programming and design.
4. Define and utilize the common principles of structured programming.

**Learning PACT Skills that will be developed and documented in this course**
Through involvement in this course, the student will develop ability in the following PACT skill area(s):

**Technology skills**
- Discipline-specific technology - Through the use of standard algorithmic design techniques in the development of their Visual Basic programming projects, the student will demonstrate technology skills.

**Major Summative Assessment Task(s)**
These learning outcomes and the Learning PACT skills will be demonstrated by
1. Preparing a final project that evaluates specific Visual Basic programming examples in terms of their design aesthetic, audience appeal, and technical proficiency.

**Skills or Competencies**
These actions are essential to achieve the course outcomes:
1. Describe skills and training needed to produce Visual Basic programming.
2. Articulate basic Visual Basic programming design principles.
3. Discuss the effect of media selection on design.
4. Recognize and apply the design principle of proximity.
5. Recognize and apply the design principle of alignment.
6. Recognize and apply the design principle of repetition.
7. Recognize and apply the design principle of contrast.
8. Differentiate between Macintosh and Windows production platforms.
9. List popular production peripherals.
10. List guidelines for selecting typography.
11. Explain color as seen through monitors.
12. Discuss technical and design aspects of Visual Basic programming images.
13. Describe types of animation used in Visual Basic programming.
14. Describe technical considerations of incorporating sound into Visual Basic programming.
15. Describe technical considerations of incorporating video into Visual Basic programming.
17. Explain the role of search engines in indexing the World Wide Web.
18. Define web pages.
19. Identify planning needed before producing a web site.
20. Describe steps in building a web site.
21. Explain how sites are tested and updated.
22. Describe the process of uploading a site.
23. Explain the benefits of site registration.
24. Outline methods for planning and costing a Visual Basic programming project.
25. Discuss interface and navigation design.
26. List guidelines for managing content and talent.
27. Describe methods for delivering Visual Basic programming projects.
28. Evaluate good and bad Visual Basic programming design.

Learning Units
I. Basic computer concepts
   a. History of computers
   b. Hardware vs software

II. Introduction to the Integrated Development Environment (IDE)
   a. Start and customize Visual Studio
   b. Manage the windows in the IDE

III. Introduction to Visual Basic and GUI programming concepts
   a. Restore a property to its default setting
   b. Close and open an existing solution

IV. Structured programming concepts and algorithmic concepts
   a. Plan an object-oriented application in Visual Basic
   b. Complete a TOE (Task, Object, Event) chart
   c. Write an algorithm
V. Modular programming, sub and function procedures
   a. Follow the Windows standards regarding the layout and labeling of controls
   b. Write pseudocode for the selection structure

VI. Arrays, strings, date and time data types
   a. Determine the number of characters in a string
   b. Remove characters from a string
   c. Insert characters in a string

VII. Simple graphic concepts
   a. Customize a graphic page
   b. Add static text to a graphic
   c. Format a graphic

VIII. Advanced GUI programming concepts
   a. Instantiate a GUI object
   b. Add property procedures to a GUI class

IX. Error handling and program debugging
   a. Include data validation in a try catch block
   b. Create a default exception
   c. Test a parameterized constructor

X. Optional: Advanced Object-oriented programming concepts
   a. Find the sorted values in an array
   b. Overloading methods

XI. Optional: File and database processing concepts
   a. Access characters in a database
   b. Compare data using pattern
   c. Find matching data

Learning Activities
Learning activities will involve the student in examining various aspects of design, technology, and project management. Lectures, discussions, worksheets, small group projects, readings, viewing of various types of Visual Basic programming, research assignments, quizzes, tests, etc. prepare the student to be equipped to successfully complete the major assessment tasks.

Grade Determination
The student will be graded on learning activities and assessment tasks. Grade determinants may include the following: daily work, quizzes, chapter or unit tests, comprehensive examinations, projects, presentations, class participation, and other methods of evaluation at the discretion of the instructor.