

## SYLLABUS

**DIVISION:** Business and Engineering Technology

**REVISED:** Fall 2015

**CURRICULA IN WHICH COURSE IS TAUGHT:** IST curricular or elective

**COURSE NUMBER AND TITLE:** ITP 112 – Visual Basic.Net I

**CREDIT HOURS:** 4 HOURS/WK, **LEC:** 3 HOURS/WK, **LAB:** 2 LEC/LAB **COMB:** 5

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- I. CATALOG DESCRIPTION:** Concentrates instruction in fundamentals of object-oriented programming using Visual Basic.NET and the .NET framework. Course content emphasizes program construction, algorithm development, coding, debugging, and documentation of graphical user interface applications.
- II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:**
- Gain knowledge of concepts of program development using object-oriented techniques
  - Learn the Visual Basic.NET programming language
  - Create graphical user interface applications
  - Apply techniques in algorithm development, coding, debugging, and documentation of graphical user interface (GUI) applications
- III. REQUIRED BACKGROUND:** Keyboarding skills; recommended requirement-ITP100.
- IV. COURSE CONTENT:**
- Describe basic history of computers, the Internet, and programming languages
  - Identify main components of Visual Studio IDE
  - Create GUI forms using various controls
  - Use variables, memory concepts, and arithmetic operators in VB apps
  - Create algorithms, pseudocode and program control
  - Apply various looping techniques
  - Implement Function Procedures and Sub Procedures in VB apps
  - Utilize Date types and Timer controls in apps
  - Apply Scope, Pass-by-Reference and Option Strict concepts in a VB apps
  - Use the debugging techniques
- V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE.**
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| <input checked="" type="checkbox"/> Communications    | <input checked="" type="checkbox"/> Computational and Computer Skills    |
| <input checked="" type="checkbox"/> Learning Skills   | <input checked="" type="checkbox"/> Understanding Culture and Society    |
| <input checked="" type="checkbox"/> Critical Thinking | <input checked="" type="checkbox"/> Understanding Science and Technology |

<p><b>Describe basic history of computers, the Internet, and programming languages</b></p> <ul style="list-style-type: none"> <li>• Identify the characteristics of low-level and highlevel programming languages.</li> <li>• Apply the basics of object oriented programming.</li> <li>• Locate additional .NET and Visual Basic resources</li> </ul>	<p>Lab exercises            In class assignments            Written test</p>
<p><b>Identify main components of Visual Studio IDE</b></p> <ul style="list-style-type: none"> <li>• Modify the IDE to user’s personal preferences</li> <li>• Identify the IDE’s menus and toolbars</li> <li>• Use Visual Studio’s help features</li> </ul>	<p>Lab exercises            In class assignments            Written test</p>
<p><b>Create GUI forms using various controls</b></p> <ul style="list-style-type: none"> <li>• Use basic controls (labels, text boxes, buttons) to develop applications.</li> <li>• Understand the importance of good form design and ease of use for the user.</li> <li>• Use other controls (check boxes, radio buttons, group boxes, etc.) to develop applications.</li> </ul>	<p>Lab exercises            In class assignments            Written test</p>
<p><b>Use variables, memory concepts, and arithmetic operators in VB apps</b></p> <ul style="list-style-type: none"> <li>• Identify Visual Basic.NETs data types.</li> <li>• Explain the difference between variables and constants.</li> <li>• Learn how to properly perform calculations using conversion functions.</li> <li>• Code arithmetic functions properly (order of operations)</li> </ul>	<p>Lab exercises            In class assignments            Written test</p>
<p><b>Create algorithms, pseudocode and program control statements</b></p> <ul style="list-style-type: none"> <li>• Use flowcharting and pseudocode to develop algorithms.</li> <li>• Use control statements to control the flow of execution</li> <li>• Use If...Then and If....Then....Else statements</li> </ul>	<p>Lab exercises            In class assignments            Written test</p>

<p><b>Apply various looping techniques</b></p> <ul style="list-style-type: none"> <li>• Use Do....While and Do Until...Loop repetition statements</li> <li>• Use For....Next repetition statements</li> <li>• Use Select Case multiple-selection statements</li> </ul>	<p>Lab exercises In class assignments Written test</p>
<p><b>Implement Function Procedures and Sub Procedures in VB apps</b></p> <ul style="list-style-type: none"> <li>• Construct apps modularly from pieces called procedures</li> <li>• Distinguish between Function procedures and Sub procedures and determine when each should be used</li> <li>• Create custom Function procedures and Sub procedures</li> </ul>	<p>Lab exercises In class assignments Written test</p>
<p><b>Utilize Date variables and Timer controls in apps</b></p> <ul style="list-style-type: none"> <li>• Create and manipulate Date variables</li> <li>• Execute code at regular intervals using a Timer control</li> <li>• Retrieve Date input with a DateTimePicker control</li> </ul>	<p>Lab exercises In class assignments Written test</p>
<p><b>Apply Scope, Pass-by-Reference and Option Strict concepts in a VB apps</b></p> <ul style="list-style-type: none"> <li>• Create variables that can be used in all the Form's procedures</li> <li>• Distinguish between value types and reference types</li> <li>• Pass arguments by reference, using ByRef, so that the called procedure can modify the caller's variables</li> <li>• Eliminate subtle data-type errors by enabling Option Strict in apps</li> <li>• Change a value from one data type to another, using methods of class Convert</li> <li>• Describe the differences between local- and module-level variables/constants and their use in apps.</li> </ul>	<p>Lab exercises In class assignments Written test</p>

**Use debugging techniques**

- Understand the need for program maintenance and modification.
- Learn how to trace errors and locate bugs.
- Use the Watch window to examine contents of variables.

Lab exercises

In class assignments

Written test