Las Positas College
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Course Outline for CIS 80

INTRO PROG/BASIC/VISUAL BASIC

Effective: Spring 2014

I. CATALOG DESCRIPTION:
CIS 80 — INTRO PROG/BASIC/VISUAL BASIC — 4.00 units

Introduction to fundamental programming concepts and logic using Visual Basic.NET to emphasize problem-solving techniques using structured design and development. Extensive coverage of the Visual Basic programming language using the Microsoft.Net and Visual Studio IDE environment. Students will construct forms and define procedures, events, properties, methods and objects to solve a variety of business-oriented problems and to create Visual Basic applications that deploy on multiple platforms such as Windows OS, Office applications, Web pages, cell phones, and handheld computers.

3.00 Units Lecture 1.00 Units Lab

Strongly Recommended
CIS 50 - Intro to Computing Info Tech

Grading Methods:
Letter or P/NP

Discipline:

	MIN
Lecture Hours:	54.00
Lab Hours:	54.00
Total Hours:	108.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering this course, it is strongly recommended that the student should be able to:

A. CIS50

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Recognize basic common programming language features and capabilities;
B. Understand and apply graphical user interface design principles for a VB.NET application using control objects
C. Write VISUAL BASIC.NET code using structured programming constructs, arrays, subroutines, functions and procedures;
D. Demonstrate how to implement logic involving sequence, selection, and repetition;
E. Enter, edit, test and debug VISUAL BASIC programs using the Visual Basic and/or Visual Studio.NET IDE;
F. Create Visual Basic applications that deploy on multiple platforms such Windows OS, Office applications, Web pages, cell phones, and handheld computers
G. Organize complex programs by using procedures and to anticipate and prevent errors by managing exceptions

V. CONTENT:
A. Introduction to VB
1. Basic Program Operations
2. Visual Basic, Visual Studio, .NET Framework
3. Types of VB applications
4. Start and customize Visual Studio or Visual Basic Express Edition
5. Create a Visual Basic Windows application
6. Manage the windows in the IDE
7. Set the properties of an object
8. Restore a property to its default setting
9. Save, Close a solution
10. Open an existing solution

B. Designing Applications
1. Program development lifecycle
2. Plan an object-oriented application in Visual Basic
3. Complete a TOE (Task, Object, Event) chart
4. Follow the Windows standards regarding the layout and labeling of controls

C. Designing Variable and Constants
   1. Data types
   2. Declare variables and named constants
   3. Assign data to an existing variable
   4. Convert string data to a numeric data type using the TryParse method
   5. Convert numeric data to a different data type using the Convert class methods
   6. Explain the scope and lifetime of variables and named constants
   7. Explain the purpose of Option Explicit, Option Infer, and Option Strict

D. Selection/Decision Structure
   1. Write pseudocode for the selection structure
   2. Create a flowchart to help you plan an application's code
   3. Write an If…Then…Else statement
   4. Write code that uses comparison operators and logical operators
   5. Change the case of a string
   6. Include a nested selection structure in both pseudocode and a flowchart
   7. Code a nested selection structure
   8. Recognize common logic errors in selection structures
   9. Include a multiple-path selection structure in both pseudocode and in flowchart
   10. Code a multiple-path selection structure using the If/ElseIf/Else and Case forms of the selection structure

E. Repetition Structure
   1. Code the repetition structure using the Do...Loop statement
   2. Include the repetition structure in pseudocode
   3. Include the repetition structure in a flowchart
   4. Initialize and update counters and accumulators
   5. Code the repetition structure using the For...Next statement
   6. Set Break points

F. Sub and Function Procedures
   1. Explain the difference between a Sub procedure and a Function procedure
   2. Create a procedure that receives information passed to it
   3. Explain the difference between passing data by value and passing data by reference
   4. Create a Function procedure

G. String Manipulation
   1. Determine the number of characters in a string
   2. Remove spaces from the beginning and end of a string
   3. Replace characters in a string
   4. Insert characters in a string
   5. Search a string
   6. Access characters in a string
   7. Compare strings using pattern-matching

H. Arrays
   1. Declare and initialize a one-dimensional array
   2. Store data in a one-dimensional array
   3. Display the contents of a one-dimensional array
   4. Code a loop using the For Each…Next statement
   5. Access an element in a one-dimensional array
   6. Search a one-dimensional array
   7. Compute the average of a one-dimensional array's contents
   8. Find the highest entry in a one-dimensional array
   9. Update the contents of a one-dimensional array
   10. Sort a one-dimensional array

I. Structure and Sequential Access Files
   1. Create a structure
   2. Declare a structure variable
   3. Pass a structure variable to a procedure
   4. Create and manipulate a one-dimensional array of structures

J. Classes and Objects
   1. Define a class
   2. Instantiate an object from a class that you define
   3. Add Property procedures to a class
   4. Include data validation in a class
   5. Create a default constructor
   6. Include methods in a class

K. Web Applications
   1. Create a Web application
   2. View a Web page in a browser window
   3. Add static text to a Web page
   4. View a Web page in full screen view
   5. Close and open a Web application
   6. Add an image to a Web page
   7. Move a control on a Web page

L. Visual Studio Tools for Office

VI. METHODS OF INSTRUCTION:

A. **Lecture** -
B. **Discussion** -
C. Overhead projector foils to introduce concepts
D. Videos; reading assignments; tutorials
E. Hands-on explanation utilizing personal computers
F. Laboratory experience: hands-on lab projects
G. Computer demonstrations with overhead display panel

VII. TYPICAL ASSIGNMENTS:

A. Code an application that uses a For…Next, While or Until loop that will allow a user to enter a Loan amount, interest rate and loan term which will calculate the monthly payment, interest portion of that payment, principle portion of that payment, balance for each month of that loan term. B. Code a program that allows a user to select a product at a set price and enter their name. The program logic will do an automatic calculation and then write that order to a data file on the first form. The logic will allow that user to shift to a second form in the application and "see" all orders from that data file displayed.

VIII. EVALUATION:

A. **Methods**

1. Exams/Tests
2. Quizzes
3. Papers
4. Class Participation
5. Lab Activities
6. Other:
    a. Methods:
        1. Programming assignments, students will be asked to write and implement assigned programs which utilize topics included in the course of study
        2. Exams, which, according to instructor preference, may include quizzes, midterms and a required final examination. Each course instructor may choose his/her examination modality but is expected to test during the term. All instructors are expected to write tests which relate to the lecture/discussion/assignments/textbook being presented in the course.
        3. Participation and attendance

B. **Frequency**

1. Frequency
    a. Two to three quizzes, mid-term, and a final examination
    b. Weekly lab assignments to reinforce and demonstrate programming skills

IX. TYPICAL TEXTS:

1. Shelly/Hoisington *Visual Basic for Windows 2008, Mobile, Web, Office and Database Application Comprehensive.*, Course Technology, 2010.
2. Zak *Programming with Visual Basic.NET*. 4th ed., Prentice Hall, 2010.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. GoPrint Card