

ILLINOIS VALLEY COMMUNITY COLLEGE



Course Syllabus

Division: Occupational Technologies

Course: CSI 1005 – Visual Basic (formerly CSI 1205)

Date: July 5, 2004
Semester Hours: 3
Lecture hours per week: 2
Labs hours per week: 2
Seminar hours per week:
Other hours:
Prerequisite: CSI 1000
Semester Offered: Fall
Instructor(s): Tannahill

I. CATALOG DESCRIPTION

This course is designed to introduce the student with previous programming experience to visual programming. Students will learn Visual Basic's built in functions, as well as, work with decision and repetition structures. Other topics will include arrays, functions, files, databases, and graphics.

II. EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

Upon completion of the course, the student will be able to:

1. build on previous programming experience to use algorithms to create structured design that will create event driven programs
2. create user the interface
3. use and understand variables and programmer defined types
4. work with he selection and repetition processes and exception handling
5. work with arrays
6. use functions, subs, and modules
7. work with security, menus, files, and direct access files
8. work with databases
9. create graphics

Outcome 1 - Students will build on previous programming experience to use algorithms to create a structured design that solves the programming problem

Competency 1.1 - Students will use algorithms to create a structured design that solves programming problem

Competency 1.2 - Students will describe the hierarchy of operations for arithmetic

Competency 1.3 - Students will use comments to add clarity to the code

Competency 1.4 - Students will employ good programming style

Competency 1.5 - Students will use test data to verify and validate programs

Competency 1.6 - Students will include documentation acceptable in a professional program

Outcome 2 - Students will create the user interface

Competency 2.1 - Students will explain the importance of the form in creating a Visual Basic project

Competency 2.2 - Students will use the label, command button, and image controls from the toolbox to create an interface on the form

Competency 2.3 - Students will use the message box for output from the project

Competency 2.4 - Students will use the code window to write the event procedure for the command button

Competency 2.5 - Students will use the command button to clear text boxes, print a form with the Print Form method, and exit the project

Competency 2.6 - Students will use the scroll bar to input integer values

Competency 2.7- Students will create a program with multiple forms that use the form load event to execute a procedure when a form is loaded

Competency 2.8 - Students will use the combo box control to select from a list of alternatives

Competency 2.9 - Students will work with check boxes and option boxes

Outcome 3 - Students will use and understand variables and programmer defined types

Competency 3.1 - Students will declare variables with appropriate names

Competency 3.2 - Students will use variables with appropriate data types

Competency 3.3 - Students will understand the concepts of variable scope
understand static variables

Competency 3.4 - Students will understand how to create programmer defined data types

Competency 3.5 - Students will work with record types to store multiple types of data into a single array

Outcome 4 - Students will work with the selection and repetition processes and exception handling

Competency 4.1 - Students will use if else and case structures

Competency 4.2 - Students will use the list box control to select from a list of alternatives

Competency 4.3 - Students will work with complex comparison structures and nested decisions to handle more sophisticated selection processes

Competency 4.4 - Students will understand pretest and post test repetition loops

Competency 4.5 - Students will use the event driven for next, while loop, and until loop repetition structures

Competency 4.6 - Students will include exception handling in programs

Outcome 5 - Students will work with arrays

Competency 5.1 - Students will understand the use of control, list, and table arrays

Competency 5.2 - Students will use control arrays to work with groups of control using a single name

Competency 5.3 - Students will declare the max. index value for a list array and understand the errors that occur when declared upper limits on max. values are exceeded

Competency 5.4 - Students will input data into an array from the keyboard and from input files

Competency 5.5 - Students will manipulate array data to create new values or locate a particular value

Competency 5.6 - Students will work with multiple arrays to match values in one array to those in another

Competency 5.7 - Students will declare, input, process, and output two-dimensional arrays

Outcome 6- Students will use functions, subs, and modules

Competency 6.1 - Students will understand the importance of general procedures and modules

Competency 6.2 - Students will distinguish between event procedures and general procedures

Competency 6.3 - Students will create general procedures by using the menu system and by entering them directly

Competency 6.4 - Students will understand the difference between two types of general procedures, sub procedures, and functions

Competency 6.5 - Students will describe the relationship between arguments and parameters in general procedures

Competency 6.6 - Students will write functions to return single values and sub procedures to process multiple values

Competency 6.7 - Students will create sub procedures to search, sort, and print arrays

Competency 6.8 - Students will understand the difference between passing by value and passing by reference in sub procedures

Outcome 7 - Students will work with security, menus, and files and direct access files

Competency 7.1 - Students will create a program that has a password to protect it from unauthorized use

Competency 7.2 - Students will create a menu

Competency 7.3 - Students will add code to the menu to execute actions when the item is selected

Competency 7.4 - Students will use a menu control array to control many menu items with 1 event procedure

Competency 7.5 - Students will use direct access files to store information

Outcome 8 - Students will use Visual Basic to work with databases

Competency 8.1 - Students will understand how databases differ from arrays

Competency 8.2 - Students will add the data control to a form and connect it to a database table through the recordset property

Competency 8.3 - Students will use bound controls to display the contents of selected database fields

Competency 8.4 - Students will add controls to browse the database records, add new records, and delete existing records

Competency 8.5 - Students will find database records with field contents that match a specified value or string

Competency 8.6 - Students will use SQL commands to work with multiple tables in a database

Outcome 9 - Students will create graphics

Competency 9.1 - Students will understand the types of business graphics and the way they aid business decision-makers

Competency 9.2 - Students will use a picture control as an area to display graphics

Competency 9.3 - Students will create a line chart using the line method

Competency 9.4 - Students will create bar charts using the box option for the line method

Competency 9.5 - Students will use the circle method to create pie charts and scatter diagrams

Competency 9.6 - Students will add titles and legends to charts

III. COURSE CONTENT:

Introduction and expected requirements

Variables, assignment statements, and arithmetic

The selection process

The repetition process

Working with arrays

Using functions, subs, and modules

Security, files, and menus

Working with databases

Creating graphics

Programmer defined types, direct access files, and object classes

IV. INSTRUCTIONAL METHOD:

Lecture

Lab - hands-on training

Testing

Programming assignments

Teacher demonstration

Group work

V. INSTRUCTIONAL MATERIALS:

Computer overhead projection system

Computer lab

Learning to program with Visual Basic, Patrick McKeown

VI. STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

Develop an understanding and/or a comprehensive knowledge of the items listed as course content.

Flowchart, code, compile, test, and document computer programming assignments and individual projects.

1. Read required material on the topic
2. Attend class on current topic
3. Complete all tests and homework
4. Ask questions about any misunderstood area either in class, during office hours, or of the tutor

5. Join in discussions

Grading Scale

A	90-100%
B	80-89%
C	70-79%
D	60-69%

There will be 3 tests given worth 100 pts each. 8-12 programming assignments will be completed worth 40 pts each. Pop quizzes will be given at the instructor's discretion worth 10 pts each.