Form Version: February 2001 EFFECTIVE TERM: Fall 2003

**PALOMAR COLLEGE**
**COURSE OUTLINE OF RECORD FOR**
**DEGREE CREDIT COURSE**

X Transfer Course X A.A. Degree applicable course
(check all that apply)

**COURSE NUMBER AND TITLE:** CSIS 117 Introduction to Visual Basic

**UNIT VALUE:** 4

**MINIMUM NUMBER OF SEMESTER HOURS:** 80

**BASIC SKILLS REQUIREMENTS:** Appropriate language and computational skills

**ENTRANCE REQUIREMENTS**

**PREREQUISITE:** None

**COREQUISITE:** None

**RECOMMENDED PREPARATION:** None

**SCOPE OF COURSE:**
Students design, create, test and run computer applications using Visual Basic. Emphasis is on learning the fundamentals of the Visual Basic interface and how to solve problems using structured design logic and the sequence, decision and repetition procedural language control structure. Selected additional features of the Visual Basic interface and procedural language are included to provide a foundation for the study of more advanced courses.

**SPECIFIC COURSE OBJECTIVES:** The successful student will:

1. Recall the fundamentals of the Visual Basic interface environment and be able to design and create graphical user interfaces in this environment using the tools available in the software.
2. Demonstrate the syntax of the Visual Basic procedural language to the extent of the introductory level covered by the text used for this course.
3. Use TOE charts and flowcharts or pseudocode to develop the logic design for solving problems, including the design of the graphical user interface and the design of the structured logic controls in the procedural language code.
4. Translate the logic design for solving problems into fully functional applications in the Visual Basic environment.
5. Demonstrate how to use the debugging features of the Visual Basic IDE to locate and solve syntax and logic errors.

6. Demonstrate how to enable error-trapping in a Visual Basic program to keep programs from crashing.

**CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:**

I. Creating Projects
- A. Understanding the Visual Basic development environment
- B. Using the form in creating projects
- C. Understanding controls and their properties
- D. Labels, command buttons and image controls
- E. Using the message box
- F. Writing event procedures in a code window
- G. Saving a Visual Basic project
- H. Using the Visual Basic help facilities

II. Variables, Assignment Statements, and Arithmetic
- A. Declaring and using different types of variables
- B. Using text boxes
- C. Writing code for event procedures
- D. Arithmetic operations
  1. Hierarchy
  2. Implementing in code
  3. Storing results in variables
- E. Using comments within procedural code
- F. Using functions to carry out common operations
- G. Using command buttons
  1. To clear text boxes
  2. To print a form with the PrintForm method
  3. To exit a project
- H. Common errors that occur in projects and their causes

III. The Selection Control Structure
- A. Types of decisions (selections) which can be made in a program
- B. Comparison (relational) operators
- C. Types of statements that implement the selection structure
  1. The If-Then-Else structure
  2. The If-Then-ElseIf structure
  3. The Select Case structure
- D. Using the list box control to perform selection
- E. Complex comparisons and nested decisions
  1. Logical operators
- F. Using the scroll bar
- G. The Form_Load event
- H. The debugging toolbar and program errors

IV. The Repetition Control Structure
- A. Types of loops that can be carried out in an OOED computer language
  1. Event-driven, Determinate (For-Next) loops, and Indeterminate (Do While/Until-Loop, Do-Loop While/Until)

2. Understanding pretest, post-test, and nested loops
B. Variable scope and static variables
C. Using the combo box control
D. Creating an executable version of a Visual Basic project

V. Working with Arrays
A. Understanding the use of arrays
1. Control arrays
2. List arrays
3. Table arrays
B. The frame control
C. Check box and option button control arrays
D. Working with list and table arrays
1. Declaring arrays
2. Subscripts
3. Loading arrays
4. Searching arrays

VI. Using General Procedures and Modules
A. Understanding the difference between procedures
1. Event procedures
2. General procedures
a. Functions
b. Sub procedures
1. Arguments and parameters
c. Passing by value and by reference
2. Using to search, sort and print arrays
B. Code modules
1. Declaring global variables
2. Creating global general procedures

VII. Menus, and the Windows Clipboard
A. Using the menu editor to create menus for a project
1. Adding code to menu items
B. Creating a memo editor using a multiline text box
C. Working with the windows clipboard
1. Cutting, copying and pasting information in the memo editor

VIII. Error handling and debugging in Visual Basic
A. Purpose of error handling in Visual Basic
B. Using the Run-time debugging commands in Visual Basic
C. Designing Visual Basic programs with error handling statements

**REQUIRED READING:**

McKeown, Patrick G. Learning to Program with Visual Basic. New York: John Wiley & Sons, Inc. 1999.

**SUGGESTED READING:** None

**REQUIRED WRITING:**
Problem solving exercises are assigned requiring students to complete six to eight computer laboratory programming assignments. These programming assignments involve hands-on computer programming exercises requiring the application of principles and methodologies learned in class. The completed assignments are at least two and usually several pages in length.

**OUTSIDE ASSIGNMENTS:**

**Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.**

Outside assignments will include completion of laboratory work, assigned readings from the text book, and other homework assignments such as end of section exercises.

**INSTRUCTIONAL METHODOLOGY:**

**Check all that apply:**
_X_ lecture
_____ laboratory
_X_ lecture-laboratory combination
_____ directed study

**DISTANCE LEARNING:**

**This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.**
Yes _X_ No_____

**If yes, check all that apply:**

_X_ Television Course (Video one-way, e.g. ITV, video cassette, etc.)
_X_ Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
_____ Two-Way Video Conferencing (Two-way interactive video and audio)
_____ One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
_X_ Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

**GRADING POLICY AND STANDARDS** (include methods of determining whether the stated objectives have been met by students):

| | |
|---|---|
| Programming Assignments | 50% |
| Midterm Test | 20% |
| Final Exam | 20% |
| Exercises | 10% |

**IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?**
Yes ____ No X Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

**CONTACT PERSON: Ronald Burgher, Ext 2760**

# SIGNATURES ON FILE