CIC Approval: 01/27/2000
BOT APPROVAL: 03/23/2000
STATE APPROVAL:
EFFECTIVE TERM: Fall 2000

SAN DIEGO COMMUNITY COLLEGE DISTRICT
CITY, MESA, AND MIRAMAR COLLEGES
ASSOCIATE DEGREE COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER: Computer and Information Sciences 186

COURSE TITLE: Visual Basic Programming **Units:** 4
Grade Only

CATALOG COURSE DESCRIPTION:

This course is an introduction to programming using Visual Basic. The course covers the fundamentals of event oriented programming in a Windows environment. Students will learn to use and program a mouse, windows, forms, menus, dialog boxes, icons, buttons, text fields, files, graphics, and other components of a Windows environment in Visual Basic.

REQUISITES:

Advisory:
ENGL 049 with a grade of "C" or better, or equivalent or Assessment Skill Level W5

FIELD TRIP REQUIREMENTS: May be required

TRANSFER APPLICABILITY: Associate Degree Credit & transfer to CSU and/or private colleges and universities UC Transfer Course List

TOTAL LECTURE HOURS: 48 - 54

TOTAL LAB HOURS: 48 - 54

STUDENT LEARNING OBJECTIVES:
Upon successful completion of the course the student will be able to:

1. Apply and demonstrate the use of Visual Basic debugging techniques.
2. Create and demonstrate the conversion of Visual Basic programs into executable and/or web-enabled applications.
3. Employ data files to save and retrieve data to a secondary storage device.
4. Illustrate the complete testing and user verification procedures required for validating Visual Basic programs.
5. Demonstrate the use of graphics in Visual Basic program menus and forms.
6. Create procedural design documentation needed to code Visual Basic programs.
7. Design the event procedure required for Windows application for visual interfaces.
8. Demonstrate the use of menus, forms, and dialog boxes in a Visual Basic program.
9. Illustrate, test, and solve Visual Basic event procedure coding.
10. Recognize the basic properties of controls used in designing Windows visual desktop forms and interfaces.
11. Identify the components of the Visual Basic development environment.
12. Describe the steps involved in the systems development life cycle for Windows application projects.

SECTION II

1. COURSE OUTLINE AND SCOPE:

A. **Outline Of Topics:**
The following topics are included in the framework of the course but are not intended as limits on content. The order of presentation and relative emphasis will vary with each instructor.

I. Steps in the systems development life cycle for interactive Windows applications projects
   A. Planning
   B. Analysis
   C. Design
   D. Implementation
   E. Operations
   F. Support

II. Visual Basic development environment
   A. Windows environment
   B. Windows explorer
   C. Visual Basic projects and files
   D. Intrinsic controls

III. Windows visual desktop forms and interfaces
   A. Controls
   B. Properties
   C. Methods
   D. Events

IV. Visual Basic event procedure coding
   A. Data types, constants, and variables
   B. Program statements
   C. Conditional statements
   D. Loops
   E. Arrays
   F. Strings and typecasts

V. Elements of Visual Basic
   A. Menu creation
   B. Forms uses
   C. Dialogue box uses

VI. Event procedures
   A. Mouse
   B. Keyboard
   C. Menu
   D. Graphic
   E. Timer

VII. Procedural design documentation
   A. Automatic documentation reports
   B. Data flow diagrams
   C. Data element dictionaries

VIII. Graphics
   A. Types of graphics
   B. Adding Graphics to programs
   C. Use of complimentary colors

IX. Data validation
   A. Built-in validation events
   B. Coded validation techniques

X. Data files
   A. Writing data to a file
   B. Reading data from a file
   C. Interfacing within integrating software suites (i.e. Microsoft Office)

XI. Web-enabled applications
   A. Fundamentals of web page design
   B. Data display
   C. Gathering data

D. Data lookups
XII. Visual Basic application program debugging
A. Manual debugging techniques
B. Automated debugging techniques
C. Optimization methods

B. **Reading Assignments:**
Reading assignments are required and may include but, are not limited to, the following:

I. Coffee, Peter, Developer tools open doors for Windows. PC Week, 16, 48, 1999.
II. Fastie, Will, Visual Basic grows up, PC Magazine, 17, 271-276, 1998.
III. Gillespie, Thom, Database Access with Visual Basic 6, Library Journal, 124, 126-127, 1999.
IV. Mateosian, Richard, Programming distributed applications with COM and Microsoft Visual Basic A. 6.0, IEEE Micro, 19, 4, 1999.
V. Orenstein, David, Java, Visual Basic seen as languages of future, Computerworld, 33, 65, 1999.
VI. Orenstein, David, Visual tools target middleware muddle, Computerworld, 33, 64, 1999.

C. **Appropriate Assignments that Demonstrate Critical Thinking:**
Critical thinking assignments are required and may include, but are not limited to, the following:

I. 1. Analyze, evaluate, and redesign a computer user interfaces.
II. 2. Propose user interface layouts.
III. 3. Create Visual Basic programs.
IV. 4. Assess computer applications to deductively and logically debug and correct errors.

D. **Appropriate Outside Assignments:**
Outside assignments may include, but are not limited to, the following:

I. 1. Research, compare, and analyze interactive user interfaces in major Windows
II. computer applications for the purpose of classroom discussion and reporting.
III. 2. Analyze and evaluate user forms and interfaces used in Internet web sites.
IV. 3. Evaluate and analyze programming requirements required in Windows applications.
V. 4. Research, analyze, and evaluate Window type interfaces and user forms utilized by Internet, World Wide Web, and commercial service providers.
VI. 5. Recommend improvements in Windows type interfaces and associated coding.

E. **Writing Assignments:**
Writing assignments are required and may include, but are not limited to, the following:

I. 1. Create and write interface form layouts with controls.
II. 2. List and describe in writing detailed control and event procedures.
III. 3. Write program testing procedures that identify validation procedures.
IV. 4. Write program operation narratives that demonstrate data flow.

2. METHODS OF EVALUATION:

A student's grade will be based on multiple measures of performance unless the course requires no grade. Multiple measures may include, but are not limited to, the following:

I. A student's grade will be based on multiple measures of performance and will reflect the objectives set forth in this outline. A final grade of "C" or better indicates the student has the ability to successfully apply theory and techniques taught in this course in subsequent courses and in practice. Distance learning students will submit their evaluation items electronically and receive electronic feedback. Evaluation methods may include, but are not limited to the following: Performance on hands-on assignments. Written responses to in-class assignments. Responses to in-class objective and/or essay question quizzes and/or examinations. Development of programs in Visual Basic. Interactive one-on-one demonstration of program testing and operations. Participation in classroom discussion. Development of program documentation.

3. METHODS OF INSTRUCTION:

Methods of instruction may include, but are not limited to, the following:

* Other (Specify)
* Distance Education
* 1. Computer assisted instruction.
* 2. Lecture
* 3. Audio/visual aided instruction
* 4. In-class, computer hands-on practice of concepts and techniques included in course objectives.
* 5. Interactive group activities including analysis, evaluation, and modification of current Windows applications.
* 6. Distance learning (TMI) students will attend electronic conferences, or where feasible, attend scheduled on-site conferences. Communication between TMI students and instructor will take place at least as per instructor course syllabus with a minimum of two electronic communications during the semester between instructor and each student.

4. REQUIRED TEXTS AND SUPPLIES:
Textbooks may include, but are not limited to:

TEXTBOOKS:
1. Aitken, P.. Sams Teach Yourself Internet Programming in Visual Basic 6 in 21 Days, Indianapolis, IN, Sams Publishing, 1999,
2. Connell, J.. Beginning Visual Basic 6 Database Programming, 1998 ed. Wrex Press,
3. Pattison, T.. Programming Distributed Applications with COM and Visual Basic 6, Microsoft Press, 1998,
4. Perry G.. Teach Yourself Visual Basic 6 in 21 days, Indianapolis, IN, Sams Publishing, 1999,
5. Wright, P.. Beginning Visual Basic 6, Wrex Press, 1998,

MANUALS:

PERIODICALS:

SOFTWARE:

SUPPLIES:

ORIGINATOR: John Couture

CO-CONTRIBUTOR(S)
DATE: 09/13/1999