

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: **VISUAL BASIC** **Semester 1**

Course No.: **GIS401**

Program: **G.I.S. Specialist**

Author(s): **Willem de Bruyne / Dan Kachur**

Date: **November 1999**

Approved: _____
Dean Date

Total Credits - 3

Prerequisites - none

**Length of Course: 7 hrs/week x 6 weeks = 42 hrs.
Hours: 45**

Total Credit

I. COURSE DESCRIPTION:

The course will overview the TOOLS Visual Basic has to offer, and how to incorporate the various components into Visual Basic applications. The course will focus on introductory application building.. Once the student becomes familiar with Visual Basic's programming environment, they will be ready to create their own programs. The course will guide the students in comfortably creating a Visual Basic front end to a database application. In addition, you will work with MapObjects to display .shp files using Visual Basic 6.0. The end-result will be the packaging of your Visual Basic projects into complete Windows applications including the creation of a setup.exe.

II. TOPICS TO BE COVERED:

1) Understand What Visual Basic is

Potential Elements of the Performance:

- Event-Driven and Object Oriented Programming
- Why study Visual Basic
- Entering and exiting VB

2) Understand Visual Basic's Main Components

Potential Elements of the Performance:

- The Menu Bar
- The ToolBar
- The Form Window
- The ToolBox
- The Properties Window
- The Project Window

3) Get Help

Potential Elements of the Performance:

- Context-sensitive Help
- Online help
- Books online
- Other sources

4) Set Property Values

Potential Elements of the Performance:

- Changing property values
- Caption, text, and name settings

5) Write Code and Running the Program

Potential Elements of the Performance:

- Writing code
- Running a program
- Stopping a program

6) Save, Open, and Modify a Project

Potential Elements of the Performance:

- Saving a project
- Opening an existing project
- Modifying a project

7) Print a Form Image, Form Text, and Code

Potential Elements of the Performance:

- Choosing options from a print dialog box
- Trouble shooting printing problems

8) Understand Visual Basic Objects

Potential Elements of the Performance:

- Some common controls
- Adding and removing controls

9) Set Object Properties

Potential Elements of the Performance:

- The components of the properties window
- Changing property values
- Visual Basic's intrinsic constants
- Visual Basic's object browser

10) Understand Naming Conventions

Potential Elements of the Performance:

- Why change control names
- How to name form objects

11) Use Font, Color, Picture, Visible and Enable Properties

Potential Elements of the Performance:

- Font properties
- Color scheme properties
- The picture property
- The visible property
- The enable property
- The importance of object properties

12) Change Property Values with Code

Potential Elements of the Performance:

- Properties, methods and events
- A generic instruction

13) Use CheckBoxes, OptionButtons, and Frame Controls

Potential Elements of the Performance:

- Checkboxes
- Optionbuttons
- Frames

14) Use Drag and Drop Techniques

Potential Elements of the Performance:

- Dragover events
- Dragdrop events
- Coding for bad drops

15) Manipulate Special Techniques with Forms

Potential Elements of the Performance:

- Form run-time properties
- Using Form_load to change property values
- Printing on a form
- Form click and double click
- Using multiple forms
- Printing forms at run time

16) How to Manage Controls

Potential Elements of the Performance:

- Listing form objects
- Common properties

17) Use CommandButtons

Potential Elements of the Performance:

- The cancel and default properties
- Access keys

18) Create Labels

Potential Elements of the Performance:

- Some useful label properties
- Experimenting with autosize and wordwrap properties

19) Use TextBoxes

Potential Elements of the Performance:

- Controlling the contents of textboxes
- Validating data in textboxes
- Changing events
- Using textboxes for output

20) Understand ScrollBars

Potential Elements of the Performance:

- Property values
- A change event
- Using scrollbars as an output indicator

21) Use InputBoxes and MessageBoxes

Potential Elements of the Performance:

- Inputboxes
- Messageboxes

22) Understand ActiveX Controls

Potential Elements of the Performance:

- ActiveX and conventional form controls
- Loading ActiveX Controls
- Saving Projects containing ActiveX controls
- Using the MapObjects ActiveX control to display .shp files

23) Use the CommonDialog Control

Potential Elements of the Performance:

- Using the colour dialog box
- Using the font dialog box
- Using the Open and Save Dialog Boxes

24) Write Code

Potential Elements of the Performance:

- Environmental options
- Finding and retrieving lost procedures

25) Use Editing Tools

Potential Elements of the Performance:

- Basic editing tasks
- Cut, copy, and paste
- Cursor movement
- Search and replace

26) Document Programs

Potential Elements of the Performance:

- Form image, form text, and code documentation
- Comment statements
- Creating about windows
- Printing output

27) Use Variables and Values

Potential Elements of the Performance:

- Rules for naming variables
- Manipulating variables at run time
- Testing for acceptable numeric data

28) Understand Operators and Precedence

Potential Elements of the Performance:

- Arithmetic operators
- Precedence

29) Use Variables and Data Types

Potential Elements of the Performance:

- Data types
- Dim statement
- Overflow
- Option explicit

30) Understand Scope of Variables

Potential Elements of the Performance:

- Form level declarations
- Module and global level declarations
- Static variables

31) Use the If-Then Statements

Potential Elements of the Performance:

- Simple If statements
- Multi-line If statements
- If-Then-Else statements
- The Else-If clause
- Nested If clauses
- Using If statements to test for Valid data

32) Use the Select Case Statements

Potential Elements of the Performance:

- Testing for matching codes
- Testing for range of values

33) Loop with Do Loops

Potential Elements of the Performance:

- Simple Do Loops
- Loop While and Loop Until Do Loops
- Do While and Do Until loops
- Looping with While-Wend

34.) Database Applications

Potential Elements of the Performance:

- Computer records
- Record structures and record keys
- Viewing file records
- Creating database applications
- Using data control methods
- Using data manager

III. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

A. Learning Outcomes and Elements of the Performance:

Upon successful completion of this course the student will demonstrate the ability to:

1. DESCRIBE AND USE SOME ELEMENTARY COMPONENTS AND FUNCTIONS

Elements of the performance:

- Describe what Visual Basic 6 is?
- Demonstrate and use Visual Basic's Main Components
- Explain Key Terms That Should be Known
- Design a User Interface
- Set Property Values
- Write Code and Run the Program
- Save, Open, and Modify a Project
- Print Form Image, Form Text, and Code

2. EXPLAIN AND USE VISUAL BASIC'S FEATURES

Elements of the performance:

- Explain the Visual Basic Objects
- Set Object Properties
- Describe Naming Conventions
- Use Font, Color, Picture, Visible, and Enabled Properties

3. ALTER PROPERTIES AT RUN TIME

Elements of the performance:

- Change Property Values with Code
- Perform Drag-and-Drop Techniques
- Use Special Techniques with Forms

4. USE ADDITIONAL FEATURES OF VISUAL BASIC 6

Elements of the performance:

- Demonstrate how to Manage Controls
- Use the Command Buttons
- Create Labels
- Create Text Boxes
- Create ScrollBars
- Create InputBoxes and MessageBoxes

5. DESCRIBE AND USE ACTIVE X CONTROLS

Elements of the performance:

- Explain What Active X Controls are?
- Use a variety of Controls
- Implement the MapObjects ActiveX control

6. EXPLAIN, DESCRIBE AND USE VARIABLES IN VISUAL BASIC

Elements of the performance:

- Explain Variables and Values
- Explain Operators and Precedence
- Explain Variables and Data Types
- Describe the Scope of variables
- Format Output using the above

7. USE VARIOUS FUNCTIONS IN DATABASE APPLICATIONS

Elements of the performance:

- Describe the nature of Computer Records
- Describe Record Structures and Keys
- Use the Data Control to View File Records
- Use the Data Form Wizard to Create Database Applications
- Use Data Control Methods
- Use the Data Manager to Create a New, Database File

IV. EVALUATION METHODS:

The mark for this course will be arrived at as follows:

Written Tests (2)	50%
Hand-on Tests (2)	30%
Take-Home Assignments	20%
	100%

LATE LABORATORY EXERCISES WILL BE DISCOUNTED

The grading scheme used will be as follows:

A+	90 - 100%	Outstanding achievement
A	80 - 89%	Excellent achievement
B	70 - 79%	Average achievement
C	60 - 69%	Satisfactory achievement
R	Repeat	
X	Incomplete.	

V. SPECIAL NOTES

1. In order to pass this course the student must obtain an overall **test/quiz** average of 60% or better.
2. Assignments must be submitted by the due date according to the specifications of the instructor. Late assignments will normally be given a mark of zero. Late assignments will only be marked at the discretion of the instructor in cases where there were extenuating circumstances.
3. The instructor reserves the right to modify the assessment process to meet any changing needs of the class. Consultation with the class will be done prior to any changes.

VI. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the instructor.

VII. REQUIRED STUDENT RESOURCES

1. Applications Programming in Visual Basic 5, 2nd ed., Mark G. Simkin