

# Microsoft VBA Programming

<b>Audience</b>	This course is intended for the person who has a strong familiarity with Microsoft Word, Excel, and Access and who would like to begin learning how to automate these programs. It introduces the audience to the programming concepts involved in the Visual Basic language while applying those concepts to the Microsoft Office programs.
<b>Description</b>	The course uses a combination of lecture, hands-on practice, and independent exercises to introduce Visual Basic for Applications, a subset of the Visual Basic programming language. This course teaches how to create simple and complex applications from within the Microsoft Office programs. We will deal with both the visual part of Visual Basic and the language features. Not only do we cover how to write programming code for each of the Office programs, but also how to start and control Office applications from other applications. This enables the student to create single applications, which take advantage of the power of each of the Microsoft Office programs.
<b>Objectives</b>	Upon successful completion of the class, students should be able to: <ul style="list-style-type: none"><li>■ understand the Visual Basic environment inside Microsoft Office,</li><li>■ create Sub Routines and Functions,</li><li>■ understand the concepts of Object Oriented Programming and Object Models,</li><li>■ use the Object Browser tool,</li><li>■ understand and work with all of the kinds of Variables and Constants, which exist in the Visual Basic language,</li><li>■ read and write Visual Basic loop structures and decision constructs,</li><li>■ create custom dialog boxes and utilize built-in dialog boxes,</li><li>■ work with Form controls such as Option Buttons, Check Boxes, and List Boxes,</li><li>■ understand and utilize Automation,</li><li>■ write robust error trapping code.</li></ul>
<b>Length</b>	3 days

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## I. Introducing the Visual Basic Editor

- A. Using the Visual Basic Editor
  - 1. Understanding the Visual Basic Editor interface
  - 2. Working in Visual Basic Editor

## B. Using the Visual Basic Editor in Excel

- 1. Coding a workbook object's event procedure
- 2. Saving and running a workbook object's event procedure



- 3. Coding the GetGenius macro procedure
- C. Using the Visual Basic Editor in Word
  - 1. Coding the document object's event procedure
  - 2. Saving and running document object's event procedure
  - 3. Coding the DisplayDate macro procedure
- D. Using the Visual Basic Editor in Access
  - 1. Coding the form object's close event procedure
  - 2. Saving and running the form object's close event procedure
  - 3. Coding the CancelAssistant macro procedure

## II. Working with the Object Model

- A. Using the Object Model
  - 1. Understanding the Object Model
  - 2. Getting Help in the Object Browser
  - 3. Using the Immediate window
- B. Using the Object Model in Excel
  - 1. Using the Object Browser
  - 2. Using the Immediate window in Excel
  - 3. Referring to range objects
- C. Using the Object Model in Word
  - 1. Using the Object Browser in Word
  - 2. Using the Immediate window

- 3. Using the Range object's select method
- D. Using the Object Model in Access
  - 1. Using the Object Browser
  - 2. Using the Immediate window in Access

## III. Working with the object variables

- A. Using object variables
  - 1. Discussing variables
  - 2. Discussing object variables
  - 3. Reserving a procedure-level variable
  - 4. Using the Set Statement
- B. Creating and using object variables in Excel
  - 1. Creating the FormatWorksheet macro procedure
  - 2. Entering a value and formula into a range object
  - 3. Formatting and previewing worksheet objects
- C. Creating and using object variables in Word
  - 1. Creating the FormatPromo macro procedure
  - 2. Using the ApplyTheme instruction
  - 3. Adding a hyperlink to a document
- D. Creating and using object variables in Access
  - 1. Creating the DisplayByGrade procedure
  - 2. Ordering the records in a report
  - 3. Creating the DisplayByGradeMacro macro

## V. Working with string variables

### Using string variables

1. Reserving a procedure-level string variable
2. Discussing an assignment statement
3. Discussing the InputBox function
4. Concatenating strings
5. Discussing the Val function
6. Discussing the Option Explicit statement

### B. Using string variables in Excel

1. Coding the workbook's open event procedure

### C. Using string variables in Word

1. Creating a Facsimile Transmittal sheet
2. Creating the Fax Transmittal macro procedure
3. Creating a custom toolbar and button

### D. Using string variables in Access

1. Creating the SelectFieldOrder procedure
2. Creating the SelectFieldOrderMacro macro

## V. Working with date variables

### A. Discussing date variables

1. Reserving a procedure-level date variable
2. Assigning a value to a date variable
3. Using VBA's Date, Time, and Now functions
4. Using the Format function

5. Using Dates and Times in calculations

6. Converting strings to dates

### B. Using date variables in Excel

1. Creating the CalcHours macro procedure
2. Using the Offset property

### C. Using date variables in Word

1. Coding the PrintInvitation procedure

### D. Using date variables in Access

1. Creating the AssignDates procedure
2. Creating a custom toolbar and button

## VI. Working with numeric variables

### A. Discussing numeric variables

1. Reserving a procedure-level numeric variable
2. Using an Assignment statement

### B. Using numeric variables in Excel

1. Creating a list box
2. Coding the List Box's DblClick event procedure
3. Using the Excel VLookup function in a procedure

### C. Using numeric variables in Word

1. Coding the UpdateMembership procedure
2. Searching a table

### D. Using numeric variables in Access

1. Discussing the ADO Object Model
2. Coding the PaymentUpdate procedure

3. Using the Recordset Object's Find method

## **VII. Using the selection structure**

- A. Discussing the selection structure
  1. Using the If...Then...Else statement
  2. Using the nested If...Then...Else statement
- B. Using the selection structure in Excel
  1. Using the PublishObjects collection
  2. Coding the Publish Calculator procedure
- C. Using the selection structure in Word
  1. Using the TablesOfContents collection
  2. Coding the CreateToc procedure
- D. Using the selection structure in Access
  1. Modifying the PaymentUpdate procedure

## **VIII. Using the Select Case statement and the MsgBox function**

- A. Understanding Select Case statement and MsgBox function
  1. Using the Select Case statement
  2. Using the MsgBox function
- B. Using the Select Case statement and the MsgBox function in Excel
  1. Using Microsoft Query
  2. Coding the DisplaySales macro procedure

- C. Using the Select Case statement and the MsgBox function in Word
  1. Coding the GenerateLabels procedure
- D. Using the Select Case statement and the MsgBox function in Access
  1. Coding the DisplayReport procedure

## **IX. Working with the repetition structure and the With statement**

- A. Understanding the repetition structure and the With statement
  1. Discussing the For...Next statement
  2. Discussing the For Each...Next statement
  3. Discussing the With statement
- B. Using the repetition structure and the With statement in Excel
  1. Modifying the DisplaySales procedure
- C. Using the repetition structure and the With statement in Word
  1. Opening, activating, and closing a document
  2. Inserting text in a document
  3. Coding the PrintAndRecordInfo procedure
- D. Using the repetition structure and the With statement in Access
  1. Creating the PostScores procedure

**X. Advanced repetition structure and string functions**

- A. Using the string repetition structure and string functions
  - 1. Using the Do...Loop statement
  - 2. Using the VBA manipulations functions
- B. Using the string repetition structure and string functions in Excel
  - 1. Coding the BreakNameApart procedure
- C. Using the string repetition structure and string functions in Word
  - 1. Coding the SortAndRemoveDuplicates procedure
- D. Using the string repetition structure and string functions in Access
  - 1. Coding the LocateInstructor procedure

**XI. Working with built-in dialog boxes and the Office Assistant**

- A. Communicating with the user
  - 1. Using the dialogs collection
  - 2. Using the Office Assistant
- B. Using built-in dialog boxes and the Office Assistant in Excel
  - 1. Coding the SortAndShade procedure
  - 2. Displaying the Sort dialog box in Excel
  - 3. Assigning the ColorIndex property
  - 4. Assigning the Range object's Cells property

- C. Using built-in dialog boxes and the Office Assistant in Word
  - 1. Coding the PrintClientList procedure
  - 2. Using the Range object's InsertDatabase method
- D. Using the built-in dialog boxes and the Office Assistant in Access
  - 1. Coding the LocateInstructor procedure
  - 2. Using the OpenReport method's WhereCondition argument

**XII. Working with custom dialog boxes**

- A. Creating custom dialog boxes
  - 1. Discussing Windows standards
  - 2. Setting the tab order and providing keyboard access to a control
  - 3. Adding a form to the project
  - 4. Using the Toolbox to add a control to the form
  - 5. Sizing, moving, deleting, saving, and restoring a control
- B. Using custom dialog boxes in Excel
  - 1. Adding an existing form to a project
  - 2. Setting control properties
  - 3. Coding the controls' event procedures in the Update Inventory dialog box
- C. Using the custom dialog boxes in Word
  - 1. Coding the controls' event procedure in the ClientList dialog box

- D. Using the custom dialog boxes in Access
  - 1. Coding the Command button controls

### **XIII. Working with option button, check box, and list box controls**

- A. Discussing the dialog box controls
  - 1. Discussing the dialog box controls
- B. Using the option button, check box, and list box controls in Excel
  - 1. Adding an option button and a list box
  - 2. Coding the form's Initialize event
  - 3. Using the AddItem method
  - 4. Coding the Calculate button's click event procedure
  - 5. Coding the CalculateSales macro
- C. Using the option button, check box, and list box controls in Word
  - 1. Coding the form's Initialize event
  - 2. Coding the Enter button's click event procedure
- D. Using the option button, check box, and list box controls in Access
  - 1. Modifying the Locate button's click event procedure

### **XIV. Automation**

- A. Understanding the Automation process
  - 1. Understanding the Automation process

- B. Using Automation in Excel
  - 1. Coding the IssueCertificate procedure
- C. Using Automation in Word
  - 1. Coding the Enter Information button's click event procedure
- D. Using Automation in Access
  - 1. Coding the Create Letter button's click event procedure

### **XV. Advanced Automation and error trapping**

- A. Discussing Automation and error trapping
  - 1. Using the GetObject function
  - 2. Intercepting and handling run-time errors
  - 3. Using the Resume statement
  - 4. Preventing multiple instances of an application
- B. Using Automation and error trapping in Excel
  - 1. Modifying the OpenMemo procedure
- C. Using Automation and error trapping in Word
  - 1. Modifying the CreateCertificate procedure
- D. Using Automation and error trapping in Access
  - 1. Create Letter button's click event procedure
  - 2. Modifying the cmdCreate control's click event procedure