Microsoft Excel VBA Programming

Course Aims

This course introduces the student in automating and customizing the different processes in Excel through VBA coding. It uses the various Excel Objects Models to manipulate and control the applications, worksheets and ranges. Furthermore, the students will be exposed to the different programming constructs and techniques in handling data from the worksheet.

The trainee will also learn how to use Events in Excel, VBA Arrays, and creating useful data forms.

Pre-requisites

Complete the Microsoft Excel Advanced Course.

Level	Duration	Time
Advanced	3 Days / 22.5 Hours	9:00 am to 5:30 pm

Module 1. Introduction To Macros

- Define a Macro Title
- Define the relationship between Macros and VBA
- Open Workbooks containing Macros
- Set Macros security level
- Enable and disable Macros
- Record and store a Macro
- Specify Macro location
- Run a Macro
- Macro Dialog Box
- Shortcut Key Dialog
- Customizing Menu Bar and Toolbar
- Forms Control
- Visual Basic Editor
- Edit a Macro
- Break-up long statements
- Concatenate statements
- Add Comments

Module 2. VBA Environment

- Familiarize with VBA Environment
- VBA options dialog
- Switch between Excel and VBA
- Use Visual Basic Editor Window
- Project Explorer Window
- Project Explorer panel buttons
- VBA Editor Standard Toolbar
- The Properties Window
- Use the Code Window
- Open a Code window:
- Use the Object Browser
- Use the Immediate Window
- Use the Debug.Print
- Use ? statement

Module 3. Working With Objects

- Understand Excel Object concept
- Library
- Use IntelliSense to list Objects Methods/Properties
- List Properties/Methods
- List Constants
- Parameter Info
- Quick Info
- Complete Word
- Understand Object Reference syntax Rules
- Read and write Object's Properties
- Enter data using Value and Formula properties
- Call Object's Methods
- Work with Excel Objects
- Cells
- Offset
- Selection
- Worksheet
- Workbook
- Window
- Application

Module 4. Variables And Data Types

- Define Variables
- Identify built-in Data Types
- Create Variables
- Declare Variables
- Implicit declaration
- Explicit declaration
- Force Declaration of Variables
- Set Option Explicit
- Define the scope of Variables
- Private scope
- Module-level scope
- Project-level scope
- Declare Static Variables
- Instantiate Object Variables
- Using Constants in VBA Procedures
- User-defined constants
- Built-in constants

Module 5. Program Contructs

- Use built-in operators
- Relational Operators
- Logical Operators
- Understand program logic
- Write decision-making statements
- Using If statements
- If-then-else statement
- If-then-ElseIf statement
- Using Select Case statement
- List items
- Relational and Range items
- Write repetitive or looping statements
- Indefinite Loop
- Do Loop
- Do While
- Do Until
- While Wend
- Definite loop
- For Next loop
- Use Step value
- For Each Next
- Exiting Loop

- Nested Loop

Module 6. Procedure And Functions
- Write reusable code
- Differentiate between
- A Subroutine (Sub)
- A Function
- A Property
- Write Procedure and Function
- Insert a Module
- Using the Procedure Dialog
- Using the manual method
- Passing arguments
- Pass by value
- Pass by reference
- Passing Optional arguments
- Use built-in Functions
- MsgBox function
- InputBox function

Module 7. Using Arrays
- Understand Array data-type
- Single-dimensional array
- Multi-dimensional array
- Declare Array
- Single-dimensional array
- Multi-dimensional array
- Array size
- Use Option Base
- Declare dynamic Arrays
- Use Array functions
- Array()
- IsArray() function
- LBound and UBound functions
- Erase function
- Pass Array arguments
- Use ParamArray

Module 8. Custom Forms And Dialogs
- Work with built-in Application DialogBoxes
- Design custom UserForms
- UserForm object view
- Properties window
- Toolbox panel
- Work with Form Controls
- Visual Interface Design
- Add Controls to UserForm
- Format Form controls
- Set Tab order
- Setting Control Properties
- Writing Control Event Code
- Display Custom Form
- Show method
- Hide method
- Unload statement

Module 9. Handling Excel Events
- Define Events
- Define Event Procedures
- Event Sequence
- Worksheet Events
- Workbook or Application Events

Module 10. Error Handling
- Understand Error types
- Syntax error
- Runtime error
- Logic error
- Use debugging techniques
- Breakpoints
- Insert Breakpoint
- Remove Breakpoints
- Break mode
- Stop statement
- Add Watch expression
- Debug Windows
- Quick Watch
- Immediate window
- Locals window
- Call Stack window
- Use Bookmarks
- Error Handling
- On Error statement
- Built-in Error object