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| **Course Title: Visual Basic for Applications (MS Excel)** | **Duration : 3 days** |

**Program Objectives**

Upon completion of this program, the participants will:

* Get acquainted with the VBA for MS Excel environment
* Understand the components of Sub (Macro) and Function procedures written in VBA
* Be able to record simple macros using the Macro Recorder
* Be able to edit recorded macros to suit their requirement
* Get acquainted with various objects in MS Excel and their properties and methods
* Gain confidence to start coding and exploring VBA with the help of reference material
* Be able to handle errors in their code and use various debugging techniques

**Lab Setup**

1. Laptops / Desktops with Microsoft Excel 2007 / 2010 / 2013 / 2016
2. Operating System: Windows 7 / 8 / 10

**Pre-Requisites**

Participants should either be advanced level users of Microsoft Excel or have experience of programming in other languages.

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| **Day** | **Module** | **Topic** |
| **Day 1** | Module 1 | Introduction and Need for VBA |
|  | Module 2 | Interface & Structure |
|  | Module 3 | Sub procedures & Function procedures – Introduction |
|  | Module 4 | VBA Language Elements |
| **Day 2** | Module 5 | Program Flow and Logic |
|  | Module 6 | Events |
| **Day 3** | Module 7 | Error Handling & Debugging |
|  | Module 8 | Interacting with Users |
|  | Module 9 | Working with Add-ins |

**Visual Basic for Applications – Contents**

**DAY 1**

# Introduction and Need for VBA

* 1. Advantages & Disadvantages of VBA
  2. Macros for automation
  3. User-Defined Functions

# Interface & Structure

* 1. Settings – Developer Tab, Macro Security, File types
  2. Macro Recorder
  3. VB Editor & Components
     1. Code Window
     2. Menu Bar
     3. Tool Bar
     4. Project Explorer
     5. Properties Window
     6. Object Browser
     7. Immediate Window (Ctrl+G)
     8. Locals Window
     9. Watch Window

# Sub procedures & Function procedures

* 1. Subs versus Functions
  2. Executing Sub procedures
  3. Executing Function procedures

# VBA Language Elements

* 1. Variables, Constants & Data Types
  2. Assignment Statements
  3. Using Labels

**DAY 2**

# Program Flow and Logic

* 1. Declaring Variables
  2. Flow Control Structures
  3. If-Then-Else
  4. Select Case
  5. Looping

# Events

* 1. Triggering the code – Events
  2. Event-handling Procedures
     1. Worksheet-level events
     2. Workbook-level events

**DAY 3**

# Error Handling & Debugging

* 1. Run-time Errors
  2. The “On Error” Statement
     1. On Error GoTo label
     2. On Error Resume Next
     3. On Error GoTo 0
  3. The “Resume” Statement
     1. Resume
     2. Resume Next
     3. Resume label
  4. Debugging
     1. Types of bugs
     2. Debugging Techniques
        1. MsgBox function
        2. Debug.Print statement (with the Immediate Window – Ctrl+G)
        3. Using the VBA Debugger

# Interacting with Users

* 1. Need for and various ways of user interaction
  2. Simple dialog boxes – MsgBox and InputBox functions
  3. Other built-in dialog boxes – GetOpenFileName method, GetSaveAsFilename method, FileDialog object, Application.Dialogs

# Working with Add-ins

* 1. Need for Add-Ins
  2. Creating, opening / enabling, and modifying Add-Ins
  3. Sharing your code