

# VBA Macro Programming for Excel Automation with AI

## 1. VBA Basics

- Excel Developer Tab overview, Recording & editing Macros
- VBA Editor (VBE) interface, Modules, Procedures & Functions
- Creating Macro-Enabled Files (.xlsm)

## 2. VBA Syntax & Programming Fundamentals

- Variables & Data Types, Constants, Comments
- Operators (Arithmetic, Logical, Comparison), Option Explicit

## 3. Control Structures

- If...Then...Else, Select Case,
- For...Next Loop, For Each...Next, Do While / Do Until

## 4. Working with Excel Objects (Object Model)

- Application, Workbook, Worksheet, Range, Cells, Rows, Columns
- ActiveWorkbook vs ThisWorkbook, With...End With

## 5. Commonly Used VBA Methods & Properties

- .Value, .Text, .Formula, .Copy, .PasteSpecial, .Clear, .ClearContents, .ClearFormats
- .Select, .Activate, .Find & .Replace, .End(xlUp), .Offset, .Resize

## 6. Working with Cells & Data

- Dynamic Ranges & Last Row/Column, Data Validation via VBA
- Remove Duplicates, Looping through cells & ranges, Sorting & Filtering

## 7. Working with Worksheets & Workbooks

- Add, Delete, Rename Sheets, Protect / Unprotect Sheets
- Open, Close, Save Workbooks, Hide / Unhide Sheets

## 8. User Interaction

- MsgBox & InputBox, UserForms (Forms, Controls, Events)
- Buttons & Shape Controls, Custom Dialog Boxes

## 9. Error Handling & Debugging

- On Error Resume Next, On Error GoTo, Debug.Print

## 10. Working with Arrays & Collections

- Static & Dynamic Arrays, Split Function, Collections vs Arrays

## 11. Events Programming

- Workbook Events and Worksheet Events (Open, BeforeClose, etc)
- Worksheet Events (Change, SelectionChange etc)

## 12. Automation in VBA

- Automating reports, VBA with Pivot Tables & Charts
- Email automation (Outlook), File handling (Dir, FileSystemObject)

## 13. Real-World Projects (Practical)

- Automated MIS Reports, Payroll, Invoice / Billing Automation

**DURATION: (20-25 CLASSES X 1.5 Hrs)  
(2Month X 1.5 Hrs X Alternate Days)**

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