
VBA005: Advanced VBA Programming

DURATION: 3 Days; Instructor-led

WHAT YOU WILL LEARN

Microsoft Excel is much more than just a spreadsheet. With the introduction of the Visual Basic Editor in Excel, followed by the significantly improved stability, Excel became a respected development platform in its own right. Excel applications are now found alongside those based on C++, Java, and the .NET development platform, as part of the core suite of mission-critical corporate applications.

Unfortunately, Excel is still too often thought of as a hobbyist platform, that people only develop Excel applications in their spare time to automate minor tasks. A brief look at many Excel VBA courses seems to confirm this opinion. These courses focus on the basics of automating Excel tasks using VBA. This course is the first of its kind in providing a detailed explanation of how to use Excel as the platform for developing professional quality applications.

While most other major development platforms seem to have a de facto standard way that explains the commonly agreed best practices for architecting, designing, and developing applications using that platform, until now Excel has not. This course attempts to fill that gap. This course explains the approaches we use when designing, developing, and supporting the applications we write for our clients.

Up on completion of this course, students will learn

- Design worksheets that will be more useful and reliable
- Leverage built-in and application-specific add-ins
- Construct applications that behave like independent Windows programs
- Make the most of the new Ribbon user interface
- Create cross-version applications that work with legacy versions of Excel
- Understand and use Windows API calls
- Master VBA performance optimization
- Develop applications based on data stored in Access, SQL Server, and other databases
- Build powerful visualization solutions with Excel charting engine

AUDIENCE

This is not a beginner-level course. This is a course for Excel developers who are working with Excel for some years and would like to move further to develop more serious Excel based solution.

PREREQUISITES

Before attending this course, students must be able to demonstrate the following skills:

- have a clear understanding of the core Excel object model Basic VBA programming
- have a basic understanding of Excel VBA development

The course materials, lectures, and lab exercises are in English. To benefit fully from the instruction, students need an understanding of the English language and completion of the prerequisites.

METHODOLOGY

This program will be conducted with interactive lectures, PowerPoint presentation, discussions and practical exercise

COURSE OUTLINES

Module 1 – Excel and VBA Development Best Practices

- Naming Conventions
- Best Practices for Application Structure and Organization
- General Application Development Best Practices

Module 2 – Function, General, and Application-Specific Add-ins

- The Four Stages of an Application
- Function Library Add-ins
- General Add-ins
- Application-Specific Add-ins

Module 3 – Dictator Applications

- Structure of a Dictator Application
- Practical Example

Module 4 – Advanced Command Bar Handling

- Command Bar Design
- Table-Driven Command Bars
- Putting It All Together
- Loading Custom Icons from Files
- Hooking Command Bar Control Events

Module 5 – The Office Ribbon User Interface

- The RibbonX Paradigm
- Ribbon Design and Coding Best Practices
- Table-Driven Ribbon UI Customization
- Advanced Problem Solving

Module 6 – Creating Cross-Version Applications

- Command Bar and Ribbon User Interfaces in a Single Application
- Other Excel Development Issues
- Windows Security and Folder Structure

Module 7 – UserForm Design and Best Practices

- Principles
- Control Fundamentals
- Visual Effects
- UserForm Positioning and Sizing
- Wizards
- Dynamic UserForms
- Modeless UserForms
- Control Specifics

Module 8 – Interfaces

- What Is an Interface?
- Code Reuse
- Defining a Custom Interface
- Implementing a Custom Interface

- Using a Custom Interface
- Polymorphic Classes
- Improving Robustness
- Simplifying Development
- A Plug-in Architecture

Module 9 – Optimizing VBA Performance

- Measuring Performance
- The PerfMon Utility
- Creative Thinking
- Macro-Optimization
- Micro-Optimization

Module 10 – Introduction to Database Development

- An Introduction to Databases
- An Introduction to SQL
- Data Access with ADO

Module 11 – Programming with Access and SQL Server

- A Note on the Northwind Sample Database
- Designing the Data Access Tier
- Working with Microsoft Access Databases
- Working with Microsoft SQL Server Databases
- Upsizing from Access to SQL Server

Module 12 – Data Manipulation Techniques

- Excel's Data Structures
- Data Processing Features
- Advanced Functions

Module 13 – Advanced Charting Techniques

- Fundamental Techniques
- VBA Techniques

Module 14 – Controlling Other Office Applications

- Fundamentals
- The Primary Office Application Object Models
- Practical Example

Module 15 – Excel and Visual Basic 6

- Why Use VB6 ActiveX DLLs in Excel VBA Projects
- In-Process Versus Out-of-Process
- Automating Excel from a VB6 EXE
- COM Add-ins
- The Add-in Designer
- Installation Considerations
- The AddinInstance Events
- Command Bar Handling
- Automation Add-ins