Excel VBA Data Analysis

for Engineers and Scientists

EMAGENIT
State of the art Excel training.
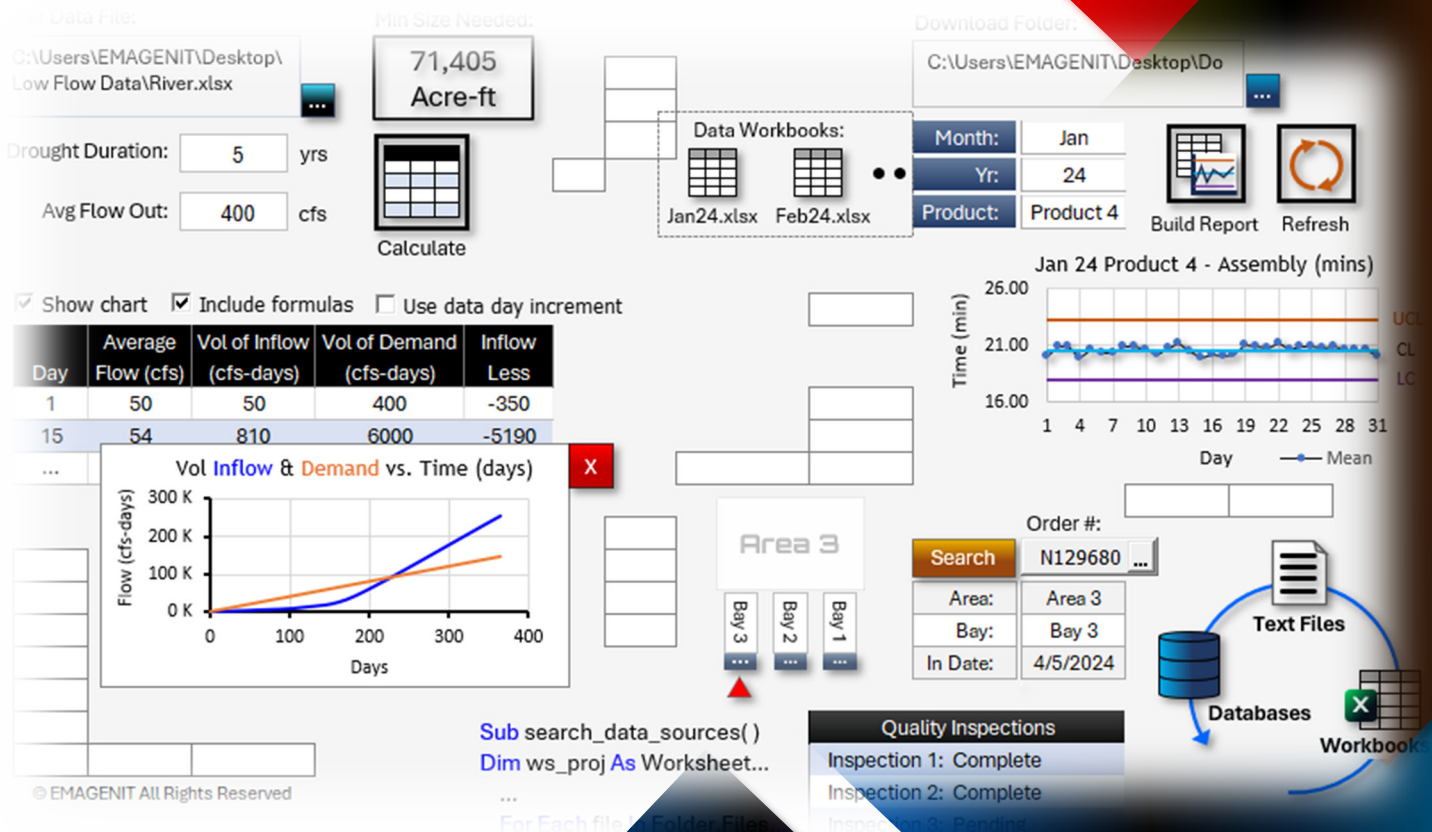
Stop wasting hours manually assembling reports in Excel, do it in seconds. Learn to combine VBA with Excel's data features to develop hi-tech data tools that calculate, visualize, integrate, and report data from multiple sources.

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How our class can help you.

Our 2-day class shows you hands-on how to combine key Excel and VBA elements to develop various data tools. It covers the essentials like using VBA to track data ranges; control data formulas; and calculate / lookup data using a variety of functions. Also covered is scanning for data in workbooks and folders and automating Excel's data tools to quickly process and report large datasets.
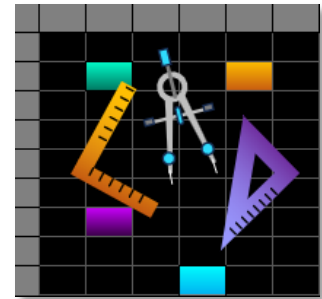
Class Examples >

In addition, it covers how to create reports from various dataset types; fill in forms; and create status, timeline, summary, and chart tables from raw data. Also discussed is how to access text files; process date / times; command databases; create chart reports, and make visual displays using charts, VBA, and shapes.

It even shows how to automatically email reports using VBA and Outlook.
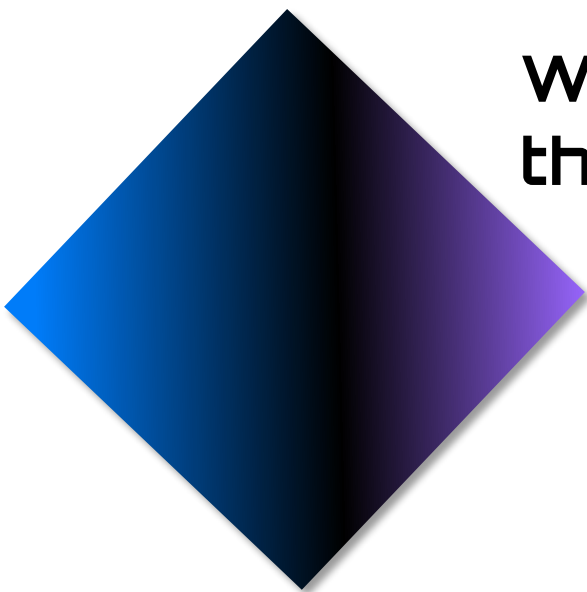
Who should attend the class?

Engineers, scientists, and technicians. Class examples will be determined by those in attendance.

Minimum Excel skills needed for the class.

Select this Excel training if you or your group have:

- Used Excel VBA in a basic manner before
- Used Excel's data tools manually and know them operationally
- Formatted worksheets manually and know Excel's basic formatting capabilities
- Built charts and drawing shapes manually before in Excel
- Used Excel's worksheet functions like MATCH, COUNTIF, SUMIF, VLOOKUP...

How we run the class.

We focus our training on what our customers need. When training begins, we analyze those needs and shift our outline appropriately. We will stress or add topics that our customers want.

Class formats and signup.

In-Person, Virtually, and Onsite. Our live hands-on classes can be attended virtually or in-person. Please visit our public signup page for class times and pricing >. Contact EMAGENIT directly at 805.498.7162 for more information about our onsites.

Key Excel VBA topics covered in class.

- Review of the critical Excel VBA language elements and objects used to develop data tools

- How to track ranges, control formulas, and run data analysis functions in VBA

- Controlling and scanning folders, workbooks, and worksheets for data with VBA

- How to build UIs for your data tools using VBA, ActiveX, Data Validation, and the worksheet

- Using VBA with Excel's data tools to rapidly process large data sets (PivotTables, AutoFilter...)

- Using VBA to generate reports and tables from various worksheet dataset types

- How to shape (insert, delete, move… rows/columns) and format worksheet tables

- Using Excel VBA to create and fill timelines, summary tables, status tables...

- How to fill forms, lookup data, and interpolate with Excel VBA

- How to use VBA to process text data and create, write, and modify text files

- Using SQL and ADO to control databases and query text file and workbook data

- How to use VBA to create chart reports and visualize data using charts, worksheets, and shapes

- Auto emailing your data reports with Microsoft Outlook and VBA

Detailed class syllabus.

Day-1

Excel VBA Editor, Language, and Module Topics

* This section is discussed when needed in class.

- How to use the VBA Editor, modules, and debugger to develop data apps

- Review of the critical Excel VBA language elements and objects used to develop data tools

- Constructing error handlers and logic to handle run-time errors in your apps

- How to use object expressions and Set statements in your code to track objects

- How to use CreateObject and GetObject to control other programs libraries

- Creating VBA procedures that run at a specific time

Tracking Data Ranges, Managing Formulas, and Using Functions in Your Data Tools

- How to find and track data ranges, headers, and data subsets in your VBA code

- Using the math, trig, and statistical functions (SUMIFS, STDEV.S, TAN...) in your code to calculate data

- Determining start / end dates; adding dates; parsing date / time elements... with VBA and functions

- Determining range start / stop points in data sets and using them in function calculations

- Using VBA to create, edit, and fill formulas on the worksheet

- Using Excel VBA to track, create, delete, and modify range and cell names

Controlling and Scanning Folders, Workbooks, and Worksheets for Data

- Design and naming strategies for storing data in multiple workbooks / folders

- Controlling workbooks and worksheets (Open, Save, Name, Delete...) with Excel VBA

- Using the FileSystemObject to create, move, delete... Windows folders and files

- Using VBA to store and retrieve workbook data in a high demand, multi-user environment

- Scanning folders, workbooks, and worksheets for data using loops, logic, and functions

- Using MATCH, COUNTA, Cells, Find... in your code to locate data on a sheet

Designing Worksheet Interfaces (UIs) for Your Data Tools

- Laying out user interfaces (UIs) on the worksheet to control your data tools

- Using the FileDialog object to construct file and folder pickers for your data

- How to make a simple toolbar to run your data tools using a userform and buttons

- Using Data Validation and ActiveX controls to control user entry on the worksheet

- Controlling and reading ActiveX controls and Data Validation using Excel VBA

- Using shapes and VBA to build program status and data displays

Using VBA to Process Large Data Sets Using Excel's Data Tools

- Automating AutoFilter, Sort, Remove Duplicates, the Analysis Toolpak... with Excel VBA

- Using VBA to generate and track multiple PivotTables on a worksheet and filter them

- How to use logic and concatenation to build logic for Excel's filters inside loops

- Using Excel's data filters inside loops to process large data sets with multiple conditions

- Creating multiple report worksheets based on data groups and pasting filtered data to them

- Controlling Excel tables, their formulas, data features, and slicers with Excel VBA

Using VBA to Generate Reports and Tables from Various Dataset Types

- Using loops, logic, and various range commands (Range, Cells...) to scan and analyze datasets

- How to use worksheet formats, data breaks... as logic triggers when analyzing complex data sets

- How to scan stacked tables, indented tables, broken tables... using Excel VBA

- Using VBA to find data values like steady state, max, min, limit violations, increments, time...

- Finding and reading data values from specific columns / rows and generating output tables

- Outputting processed worksheet data to multiple report worksheets / workbooks with VBA

Day-2

Formatting and Filling Report Tables and Forms with Excel VBA

- How to use VBA to insert, delete, and move worksheet table rows and columns

- Using Excel VBA to format simple and complex worksheet table patterns

- Automatically filling worksheet-based forms using Excel VBA

- Using Excel VBA to create and fill chart, status, timeline, and summary tables

- Using VLOOKUP, XLOOKUP... to lookup table data and perform interpolation

- How to use Excel VBA to add formulas or output data to table rows and columns

Controlling Text Files and Processing Text Data with Excel VBA

- Cleaning and parsing text in your code using Split, Mid, Instr, Format, TRIM...

- Automating Text Wizard and Text to Columns to load and parse text data to a worksheet

- Using the FileSystemObject and TextStream objects in VBA to open, write, close... text files

- Writing Excel data to a text file using VBA loops and string concatenation

- Using loops, logic, functions, and arrays to analyze and output text file data to the worksheet

Using VBA, SQL, and ADO to Control Databases and Query Data

- Basic SQL language review

- How to write an SQL statement and connection string in Excel VBA

- Using VBA and concatenation to create an SQL string

- How to use VBA, ADO, and SQL to update, insert, and delete database data

- Using VBA, ADO, and SQL to query workbook, text file, and database data

- Automating Power Query to quickly integrate and filter data from different sources

Visualizing Data Using VBA, Charts, and Shapes

- How to use Excel VBA to create and format Excel charts (xy scatter, column, pie, combo...)

- How to use Excel VBA to arrange multiple charts on a worksheet (chart report)

- Using Excel VBA to reset a chart's data source to a range or array

- How to use VBA to create chart limit lines, curve fits, alter data labels...

- Using Excel VBA to color data points, hide / display series...

- How to combine VBA, Charts, and shapes to form data displays

Auto Emailing Your Data Reports with Outlook and VBA

- Key Microsoft Outlook objects to know

- Attaching an Excel file or text file to an email using VBA

- Loading email recipient, subject, body text... using Excel VBA

- Using Excel VBA to automatically send your email from Outlook