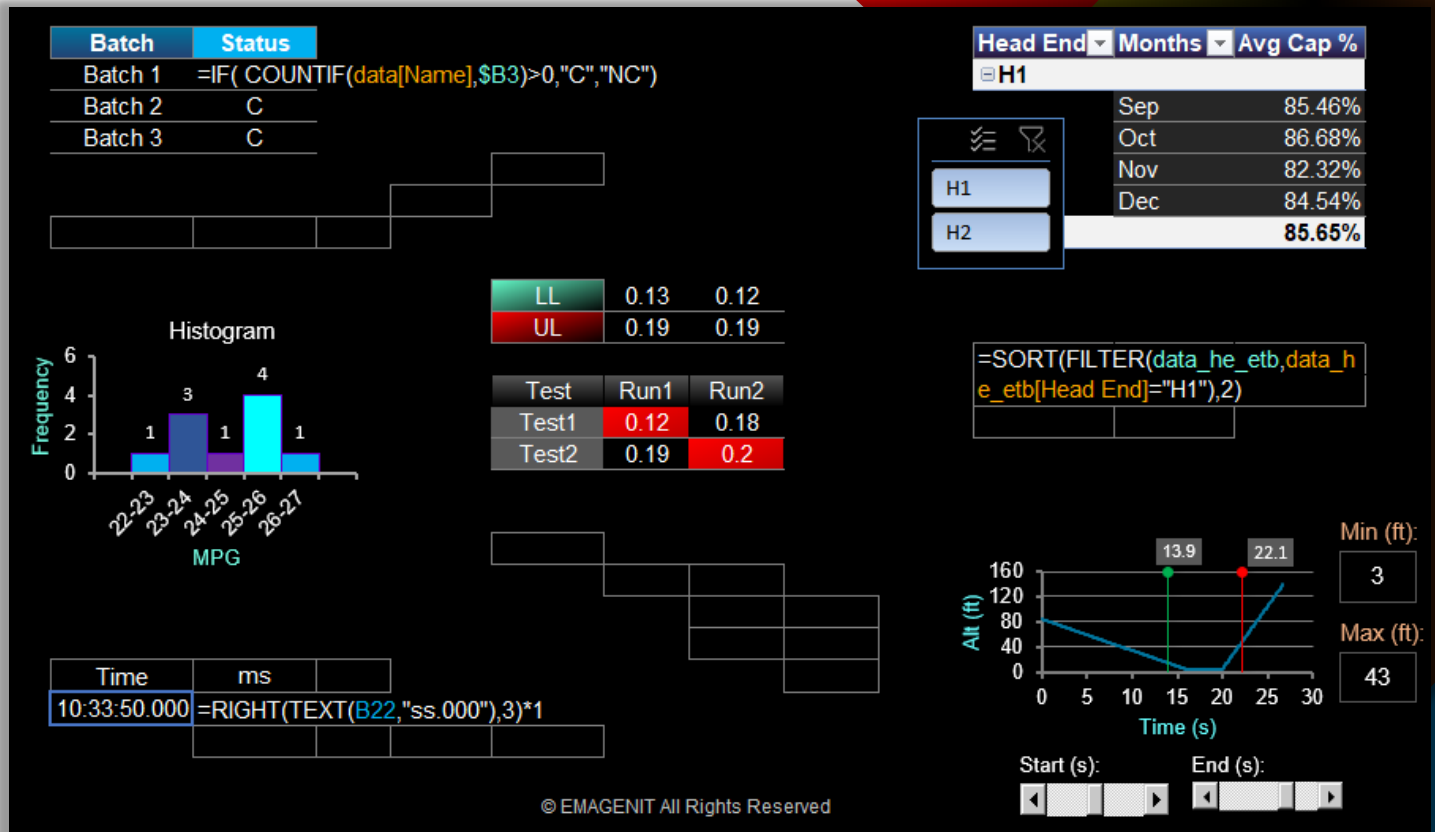


Excel Data Analysis

for Engineers and Scientists



Unleash Excel and rapidly solve multi-step engineering and science data problems.

Learn to rapidly analyze, report, and visualize technical data by combining Excel's data elements, formulas, and charts into adaptable data tools.

How our class can help you.

Our 1-day class shows you “hands-on” how to rapidly analyze, report, and visualize data by combining Excel's data elements, formulas, and charts. It covers essential topics like how to use various formulas, functions, filters, and logic to process data. Data collection strategies between worksheets and workbooks are also explored. It also shows how to use charts, PivotTables, slicers, and Pivot Charts to rapidly create reports and visualize data.

In addition to the essentials, topics like curve fitting; parsing text, dates, times; Conditional Formatting; and building array formulas to process data are also discussed. You'll also explore how to use Power Query to automatically import and filter data for your formulas, charts, and reports.



Examples of what you'll learn.

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:

- Controlled workbooks and worksheets
- Copied and pasted worksheet data
- Performed basic cell formatting tasks like coloring a cell, bolding, aligning...
- Used cell and range references like A1 or A1:A10 in formulas
- Built formulas like $=.5*0.002377 *A1^2$
- Used basic worksheet functions like SUM, MAX, MIN...



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 topics covered in class.

- How to use cell references, names, and arrays to build data formulas and combine worksheet data
- How to use Excel's Filters, Sort, Slicers, Analysis Toolpak, and Excel tables to rapidly filter and process data
- Flagging and displaying worksheet data using Conditional Formatting and logic
- Creating and formatting charts; curve fitting chart data
- Using key math, date-time, and statistical worksheet functions to analyze data
- Looking up data in worksheet tables using the VLOOKUP, XLOOKUP, INDEX... functions
- Using logic functions like SUMIFS, COUNTIFS, IF, AND... to summarize, count, and analyze worksheet data
- Importing text files with Text Wizard and analyzing worksheet text with functions like LEFT, MID, CLEAN...
- Building array formulas to analyze complex engineering and science data sets
- How to use PivotTables and Pivot Charts to rapidly process, summarize, and visualize data
- How to use Power Query to import and filter (i.e. sort, delete, clean, trim...) data automatically

Detailed class syllabus.

Worksheet Formula, Linking, and Parsing Fundamentals

- Designing worksheet and Excel tables to store technical data
- Using different cell reference types and names to build data formulas
- Consolidating and linking multi-worksheet / workbook data with formulas
- Using Excel tables, structured references, and spill over arrays to track and assemble data
- Rapidly parsing, filtering, and arranging report data using the UNIQUE, FILTER... functions
- Review of using the PasteSpecial feature to paste parts of data

Using Logic to Analyze, Flag, and Display Worksheet Data

- Using the IF, IFS, AND... functions and <,>... operators to make data decisions
- Summing and counting data with logic using the SUMIFS and COUNTIFS functions
- Finding MAX, MINS... with logic using the MAXIFS, MINIFS... functions
- Creating dynamic logic in formulas using string concatenation
- Using Conditional Formatting and logic to flag and display worksheet data

Analyzing Data with Filters and the Analysis Toolpak

- How to use Sort, AutoFilter, Text to Columns, and the Advanced Filter to filter test data

- Filtering and calculating data using an Excel table's quick analysis tools and slicers
- Removing duplicate values from data columns with the Remove Duplicates feature
- Using the Analysis Toolpak to analyze your data

Analyzing Dates, Times, Text, Statistics, and Performing Table Lookups

- Analyzing dates, times, and milliseconds using the Date, Time, and Text functions
- Trimming, parsing, and cleaning worksheet text using the SUBSTITUTE, MID, TRIM... functions
- Performing table lookups using the INDIRECT, VLOOKUP, and XLOOKUP... functions
- Using the INDEX, MATCH, and the XMATCH functions to return table rows or columns
- Using key statistical functions like STDEV.P, VAR.P, T.INV... to analyze data

Using Power Query and Text Wizard to Import and Filter Data

- Using Text Wizard to import text file data directly to a worksheet
- How to use Power Query to link to external data (workbooks, text files, databases...) and import it
- Performing various data tasks in Power Query like filtering, merging, replacing, splitting, trimming... data

- Using Power Query to extract information from Excel tables to make report and chart tables
- Refreshing, editing, and updating Power Query based Excel tables and their sources

Chart Design, Curve Fitting, and Data Displays

- Creating and formatting XY Scatter, Column, Line, Pie... charts
- How to create combo charts (i.e. line /column...) and combine multiple tables in a chart
- Creating limit lines and secondary axes in your charts
- Laying out multiple charts on the same worksheet to create chart reports
- How to curve fit your chart data and extract the equation
- Combining Excel tables, charts, slicers, ActiveX, and shapes to visualize data

Analyzing Complex Data Sets Using Array Formulas

- Combining the FILTER, SORT, CHOOSECOLS... functions to filter data
- Using simple array formulas to correct and filter data for various functions
- Creating array formulas that analyze complex data sets and perform advanced lookups

Using PivotTables and Pivot Charts to Analyze Data

- Creating, formatting, and controlling PivotTables
- Calculating various statistics and totals in a PivotTable
- Constructing a Pivot Chart from a PivotTable

- How to use the GETPIVOTDATA function to retrieve PivotTable data
- Using slicers, timelines, PivotTables, and Pivot Charts to build visual displays