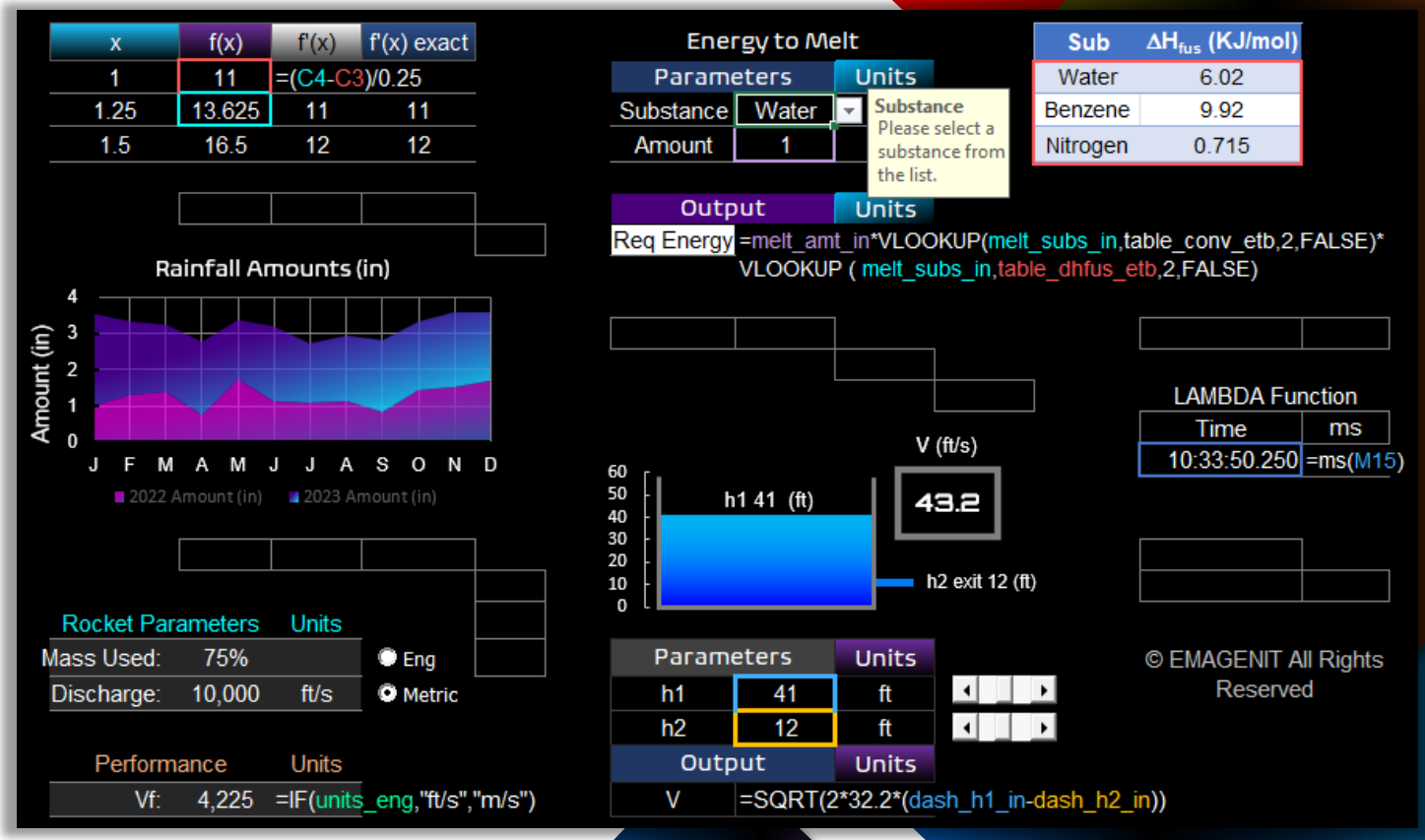
EMAGENIT
State of the art Excel training.

Microsoft Excel

for Engineers and Scientists



Explore Excel's powerful capabilities to rapidly assemble tools. Learn the fundamentals of harnessing Excel's calculation, data, charting, and interface abilities to rapidly build problem solving tools.

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How our class can help you.

Our 1-day class shows “hands-on” you the Excel skills needed to assemble a wide variety of problem-solving tools. It covers the basics like how to create formulas; use names and cell references; link data; control cell inputs; use formula logic; and lookup data. It also shows how to build tables, create technical charts, and layout problems.

Examples of what you’ll learn.

In addition to the basics, it shows how to build technical forms; use key worksheet functions; collate and process data; and solve numerical methods. We also cover how to create illustrations that update automatically and build custom functions using LAMBDA.

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's Ribbon interface, dialog boxes, and shortcut menus
- Opened and saved a workbook file
- Entered data in a worksheet cell before
- Copied and pasted data in Excel
- Created worksheet formulas like =A1+(A2*A3)

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.

- Problem layout, formula design, cell references, cell naming, and linking sheets
- Formatting worksheets and using shapes to create technical illustrations
- Filling formulas in single and two variable tables
- Using the IF, AND, OR... functions and , =... to make formula decisions
- Controlling user cell inputs with Data Validation and ActiveX controls
- How to use Conditional Formatting to flag calculation limits
- Filtering and storing data in worksheet and Excel tables
- Using key Excel worksheet functions to perform basic math, trig, statistical, complex, and lookup operations
- Creating and formatting technical forms on the worksheet
- Methods to collect and calculate data from multiple worksheets and workbooks
- How to format and create charts, limit lines, secondary axis, combined charts...
- Solving numerical methods on the worksheet; how to use Goal Seek and Excel’s iteration feature
- Using LAMBDA to create custom functions that replace large technical formulas

Detailed class syllabus.

Problem Layout, Formulas, Basic Logic, and Worksheet Tables

- Problem layout and formatting on the worksheet
- Creating technical formulas, cell references, and names and using functions
- How to debug formulas and trace where inputs are used in formulas
- How to efficiently pass data between sheets and workbooks
- Laying out worksheet tables for use in engineering and science problems
- Creating and filling formulas in single and two variable tables
- How to use the <, >... operators and IF, AND, IS... functions to make formula decisions

Controlling User Inputs, Flagging Cell Values, and Using Shapes to Illustrate

- Using Data Validation to control cell inputs and create cell drop down lists
- How to setup and use ActiveX controls to constrain user cell inputs
- Using Conditional Formatting and logic to flag cell values and problem limits
- How to display cell data in pictures and shapes and update it automatically

Storing, Filtering, and Calculating Data in Excel Tables

- How to create an Excel table and control its formats, filters, rows, columns...
- Using Excel table structured references to build worksheet functions that adapt to changing data

- Using Excel's Sort, Filter, Copy, and PasteSpecial features to rapidly organize table data
- Creating reports and calculating data using an Excel table's quick analysis tools, slicers, and filters
- Calculating data subsets and tables using the UNIQUE, FILTER, and SORT functions
- Creating spill over arrays to return multiple values from a formula

Using Key Worksheet Functions to Solve Problems and Process Data

- Basic math operations using the SUM, AVERAGE, MAX, SUBTOTAL... functions
- Analyzing data using logic functions like SUMIF, COUNTIF...
- Performing trig and math operations using the RADIANS, COS, TAN, ROUND, SQRT, LN... functions
- Calculating complex numbers using the IMAGINARY, COMPLEX, IMSUB... functions
- Basic statistical operations using the STDEV.P, VAR.P, FREQUNECY... functions
- Performing table lookups using the VLOOKUP, HLOOKUP, and XLOOKUP functions

Creating Technical Forms and Collecting Worksheet Data

- Formatting and layout methods for creating technical worksheet forms
- Using ActiveX controls and Data Validation to control form inputs
- Using the IF, AND, OR, IS... functions to decide which values to display in a form

- Collecting form data from different workbooks using mixed cell references
- Using the Consolidate tool to collate data between different worksheets
- Using 3-d range references to quickly access data on multiple worksheets

Building and Formatting Engineering / Science Charts

- How to create XY Scatter, Log, Column, Line, Pie... charts
- Formatting chart data series, data labels, gridlines, axis limits...
- Linking chart data labels and titles to cell output
- Creating limit lines and a secondary axis for your charts
- Displaying multiple tables and data points in one chart
- How to combine two or more chart types in one chart (i.e. combo chart)

Performing Numerical Analysis Methods on the Worksheet

- Performing integration and differentiation using the worksheet grid
- Using Goal Seek to quickly solve non-linear equations on the worksheet
- How to perform array operations using the MINVERSE, MMULT, TRANSPOSE... functions
- Quickly solving a system of linear equations on the worksheet
- Solving ODE and boundary value problems on the worksheet

Creating Your Own Custom Worksheet Functions Using LAMBDA

- Using LAMBDA to create custom functions that replace large cumbersome formulas

- How to translate your technical formula into a LAMBDA function
- What are parameters and how to use them in a LAMBDA function
- How to add a LAMBDA function to Name Manager
- Using your custom worksheet function in a formula