

# Excel with Macros & VBA 3 – Formulas & Functions – Course Outline

## A. Course Overview

If you have Excel worksheets that use complex formulas, that are difficult to understand, and virtually impossible to maintain, then this course is for you. In this training you will learn to create Custom Worksheet Functions, also known as User Defined Functions (UDFs), using a 100% manual coding approach. And, with what you've done in examining and modifying generated VBA code during Levels 1 and 2, you're typically now ready to do this work. After a review of best practices for Formula creation, you'll learn to create UDFs using VBA code that's simple to understand and easy to maintain.

## B. Performance Goal

This course enables students to understand the purpose and creation of User Defined Functions (UDFs). This is done by working through several exercises that look at Built-in Worksheet Functions and see how UDFs can be created to simplify an end user's use of them, as well as other Custom Worksheet functions.

## C. Learning Outcomes

1. Learn/Review the four Cell Reference methods used when inserting a Worksheet Formula/Function.
2. Learn keyboard shortcuts to show all Formulas in cells and how to select a Cell Reference option.
3. Learn to when to assign each of the four Cell Reference methods.
4. Learn when a Name Range can be used in a formula.
5. Learn where a UDF's code needs to be placed, within the VB\* Editor, and what to do if it's missing.
6. Learn the critical code statement that a UDF requires to ensure that it returns a value to a cell.
7. Learn about the idea of using code generated by the Macro Recorder for UDF creation.
8. Learn the two ways that a UDF can be inserted into a cell.
9. Learn the seven points of comparison between a "Sub" procedure and a "Function" procedure.
10. Learn the keyboard shortcuts and alternate Excel screen icon methods of executing a UDF.
11. Learn to use the 1 VBA Function and 1 Code construct recommended for multiple condition tests.
12. Learn to use Compound Logic Operators AND/OR for the creation of complex condition tests.
13. Learn about the three major benefits derived from the use of UDFs.
14. Learn about the two ways that you can create end user Help for a UDF.
15. Learn about Boolean Data, Logical and Information Functions and how to use them within UDFs.
16. Learn to create a UDF to replace many separate formulas used to display data into date ranges.
17. Learn about Text Manipulation Functions and Custom Date Formats and how to use these in UDFs.
18. Learn about Public and Private UDFs and when to use them and how to fix errors with Private UDFs.
19. Learn to create Fiscal Quarter & Year UDFs and how to PivotTable fields assigned these UDF values.
20. Learn to enable Flexible Date Filters by converting Dates into Text values, and then using Text Filters.
21. Learn to make VLOOKUP functions "unbreakable" and simplify "VLOOKUP functionality" via UDFs.
22. Learn to use the SUBTOTAL function to make Data Filter Calculations, and simply its use via a UDF.
23. Learn to use a Reference for VBA Functions, and a List of Worksheet Functions available within VBA.