

KOENIG SOLUTIONS • COURSE OUTLINE

Mastering Microsoft Excel and Power Query Including M Language

Learn to import, transform and combine data with Power Query and build advanced solutions using the M formula language.

15

MODULES

117

TOPICS

1

HANDS-ON ACTIVITY

COURSE OVERVIEW

This course covers Power Query in Excel, starting with importing, transforming and refreshing data from files, websites, PDFs, ODATA, SharePoint and other online sources. It then addresses combining and appending data across workbooks, folders and sheets, merge and join options including fuzzy matching, and loading data into Power Pivot and the data model. Later modules apply these skills to complex data analysis problems using merge, unpivot and pivot techniques. The course concludes with the M formula language, covering lists, records, custom functions, parameters, error handling and query performance.

WHO THIS COURSE IS FOR

Excel Users

Data Analysts

Financial Analysts

Business Intelligence Analysts

Report Developers

LEARNING OBJECTIVES

- Import data from files, websites, PDFs, ODATA and SharePoint
- Apply transformations such as fill, replace and unpivot columns
- Combine and append data from multiple workbooks and folders
- Compare merge options including inner, outer and fuzzy joins
- Load data to Power Pivot and build a data model
- Analyse complex data problems using merge and lookup techniques
- Explain M language concepts such as let, lists and records
- Create and invoke custom M functions for flexible data import

15 Modules, 117 Topics

01

Introduction

TOPICS

- Application of Power Query
- **Important:** Excel versions, Expectations & course pathways
- Workaround for loading as Pivot Table

02

The Power of Power Query

TOPICS

- Analyse Large Data Quickly! Pivot Table or Power Query?
- **Power Query Overview:** Import Large Data from Another File
- Power Query Editor & Basic Transformation
- Quick Insights on Data Quality & Distribution
- Formula Bar, Applied Steps & introduction to M Code
- Close & Load Destinations
- Refresh Data & PQ Refresh Options
- Import CSV File & Extract Text Based on Pattern
- Merge Data with Another File
- **Old School Method:** What if There Was NO Power Query?

ACTIVITY

- Get Familiar with Power Query

03

Important Power Query Tips & Tricks

TOPICS

- Feature Name Change in Office 365 in 2021
- Uploading Data from Excel
- The Hidden Table Method
- Handling Changes to the Source
- Data Types
- Data Types vs. Formatting & Null Values
- Power Query Navigation Shortcuts
- Finding & Correcting Errors in Data
- **More Data Views:** Duplicate OR Reference Query?
- Keeping an Eye on Query Dependencies
- Delete, Manage, Copy Queries & Backup Results

04

Helpful Power Query Transformations

TOPICS

- Text Transformations
- Merging Columns & What to Watch Out For
- Fill & Replace Values to Create Proper Datasets
- Sort Data including Multiple Levels
- Remove Duplicates including Multiple Columns
- Number Transformations & What to Watch Out For
- Working with Filter (AND & OR Conditions)
- Change Type & Remove Columns Trap
- Column from Examples - Extract Patterns Quickly
- Allocate Data to Groups or Buckets
- Conditional Columns in Power Query
- Aggregating (Grouping) Data on Multiple Levels
- Group by for All Rows
- Unpivot Columns - Basics
- Unpivot & How to Overcome Common Errors
- Pivot Columns - Basics
- Problem with Split by Delimiter
- Split Columns by Rows instead of Columns
- Date Transformations (Extract Age, Weekday etc.)
- Creating Dates from Text or Columns
- Time Transformations (Calculating Hours worked)
- Date & Number Errors When Importing Data

05

Custom Column & Basic M Manipulation

TOPICS

- Important Basic Power Query M Logic
- Why Use Custom Columns
- Introduction to “Add Custom Column”
- Custom Columns Type Compatibility & Intrinsic Functions
- Skipping Steps in Power Query
- Adjusting FILTER & Conditional Columns to Reference a Dynamic Variable
- Drill-Down in Power Query
- Custom Formulas for Template Creation

06

Power Query Online Data Sources (Online)

TOPICS

- Connecting to different Sources
- Import Data from a Website
- Automatically Connect to Files on Websites
- Import Data from PDF
- Import Data from ODATA
- Get Google Sheet Data with Power Query
- Connect to Outlook Online (Microsoft Exchange)
- Connect to SharePoint or OneDrive for Business
- **Pro Tip:** How to Change Source from Local to SharePoint

07

Combining / Appending Data

TOPICS

- Why Append Data? The Difference Between Merge & Append
- Combine / Append Data from Multiple Workbooks
- Combine All Files in a Folder (with Excel Tables)
- Combine All Files in a Folder (Without Excel Tables)
- How to Adjust Folder Path from Local to SharePoint Drive
- Combine All Sheets in a File (Pivot Table from Multiple Sheets)
- Overcome Potential Errors when Combining Sheets (Become Pro)
- Consolidate Data from Multiple Sheets in the Current Workbook

08

Merge Options - Join Kind Options Explained

TOPICS

- Overview of Merge Options and Join Kinds
- Left Outer Join & Right Outer Join
- Merge Based on Multiple Columns
- Can You Find the Mistake? Merging Text Columns
- Merge Data to Get Multiple Match Results & Bonus Tip
- Inner & Full Join in Power Query
- Left & Right Anti Join when Merging in Power Query
- How to Use Fuzzy Match in Power Query
- Fuzzy Match with Transformation Table

09

When to Use Power Pivot & Load to Data Model

TOPICS

- When to Load Data to the Data Model
- Availability of Power Pivot
- Pivot Table from Multiple Excel Tables
- Power Pivot Table with Data Model & Power Query
- Create a Calendar Table in Power Pivot
- Pivot Slicers & TimeLine with Power Pivot & Power Query

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Solving Complex Data Analysis Problems with Merge

LEARNING OBJECTIVES FOR THIS SECTION

- Messy Data from Multiple Rows to One Row (Create Proper Data Set)
- Search and Replace Bulk Values
- Calculate Value Difference to Previous Row
- Approximate Match Lookup with Merge

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Advanced Problem Solving Using the Power Query Interface

LEARNING OBJECTIVES FOR THIS SECTION

- Assign Unique Number to Group
- Advanced Unpivot Techniques
- Advanced Pivot Techniques
- Incremental Data Load & Self Referencing Query (Hidden Tip)

12

Understanding M Formula Language (Let, Lists, Records & Improving Performance)

TOPICS

- | | |
|---|--|
| <ul style="list-style-type: none"> ■ M Language - How M Thinks (let Expression & Values) ■ Defining & Invoking Custom M Functions ■ Reference Guide for Standard M Functions ■ Lists & Records and how to Reference a Specific Cell in a Table ■ Summarizing Brackets & Lookup Operators in M code ■ Creating Lists and Tables inside Power Query | <ul style="list-style-type: none"> ■ Understand Each Keyword & the Purpose of _ (underscore) ■ Using Power Query Parameters ■ IF Then & Lookup Operators to Lookup Values in Previous Row ■ Error Handling - Bulk Replace Lookup with Try Otherwise ■ Speed up Queries: Table.Buffer & How to Test Impact (Hidden Tip) ■ Query Folding - Improve Performance for Relational Databases |
|---|--|

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Working with List & Table Functions

WHAT YOU LEARN IN THIS SECTION

- Create a Calendar Table from to End Date
- Power Query Text Functions (Text.Contains, Text.Replace)
- How to Use List Functions in Custom Column
- Merge Values from Rows into One Cell

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Creating & Invoking Custom Functions

WHAT YOU LEARN IN THIS SECTION

- Unpivot & Consolidate Data from Multiple Sheets (with Custom Function)
- Rank by Group (Nested Rank) with Power Query
- Running totals by Month (Invoking functions)

15

Flexible Importing of Data with the Help of Functions

WHAT YOU LEARN IN THIS SECTION

- **Better Collaboration:** File Path as Parameter in Power Query
- **Better Collaboration:** File Path from a Cell (Formula.Firewall Error)
- **Import from Folder:** Mixed Letter Case Headers & Trailing Spaces
- Import All Sheets BUT Data s from Different Rows

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Hands-on exercises throughout the course
- Delivery by certified instructors and subject matter experts
- Course completion certificate from Koenig

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