Course Outline
Microsoft Excel Power Query

Duration	**6 hours** - (Can be Delivered over **Two – 3 Hour Sessions** or **One – 6 hour Session**)
Audience	Excel users who regularly clean, combine or prepare data for reports, PivotTables and dashboards.
Pre-Requisites	A good working knowledge of Excel. Familiarity with Excel Tables and basic PivotTables is recommended. No previous Power Query experience is required.
Delivery	Live virtual or in-person training, with demonstrations, guided practice, discussion and supplied exercise files
Group Size	Recommended maximum: 10 participants for an interactive session

Course objective
Learn how to use Power Query to connect to data, clean and reshape it, combine information from multiple sources, and create repeatable processes that reduce the manual work involved in preparing data for Excel reports and dashboards.

Module 1: What is Power Query?

- Power Query and the Extract, Transform and Load process
- When to use Power Query rather than formulas or manual copy and paste
- The Power Query workflow: connect, transform, combine, load and refresh
- Access Power Query in Excel
- Understand queries, source data and output data

Module 2: Getting Data

- Load data from an Excel Table/Range
- Connect to Excel workbooks and CSV/text files
- Overview of folder, SharePoint and OneDrive connections
- Navigate the Power Query Editor
- Preview data and understand column profiling tools

Module 3: Managing Rows & Columns

- Use first row as headers
- Choose, remove and reorder columns
- Filter rows
- Remove blank rows, duplicates and errors
- Keep or remove top and bottom rows
- Sort data appropriately

Module 4: Text & Number Transformations

- Trim and Clean text
- Change case
- Split and merge columns
- Extract text
- Replace values
- Apply number operations and rounding

Module 5: Data types, nulls and errors

- Apply correct text, number, date and time data types
- Recognise the effect of incorrect data types
- Manage null and blank values
- Find, investigate and correct errors
- Use locale-aware data types where relevant

Module 6: Reshape data for analysis

- Fill Down and Fill Up
- Transpose data where appropriate
- Pivot columns
- Unpivot columns and Unpivot Other Columns
- Convert cross-tab reports into analysis-ready tables

Module 7: Summarise & Calculate

- Group By using Sum, Count, Average, Minimum and Maximum
- Group using one or more columns
- Create Custom Columns
- Create Conditional Columns
- Use date transformations to derive year, quarter, month, week and age
- Introduction to formulas created in Power Query

Module 8: Append Queries

- Append two or more tables
- Append Queries compared with Append Queries as New
- Understand how Power Query aligns columns by heading
- Identify problems caused by inconsistent source structures

Module 9: Merge Queries

- Join two related tables using matching fields
- Prepare matching columns and data types
- Understand Left Outer, Inner and Anti joins
- Expand selected fields from the merged table
- Identify matched and unmatched records

Module 10: Combine Files in a folder

- Import and combine files from a folder
- Understand the sample file and transformation query
- Apply one set of transformations to every file
- Add a new monthly file and Refresh

Module 11: Applied Steps & M-code

- Understand how Power Query records each transformation
- Use, rename, reorder, edit and delete Applied Steps
- Use the Formula Bar
- Introduction to M code and the Advanced Editor
- Use meaningful step and query names

Module 12: Query Management

- Duplicate a query
- Reference a query
- Understand the difference between Duplicate and Reference
- Organise queries into groups
- View query dependencies
- Enable or disable loading where appropriate

Module 13: Sources, settings and troubleshooting

- Change a file or folder source
- Respond to renamed or moved files
- Understand Data Source Settings, credentials and permissions
- Introduction to privacy levels
- Diagnose refresh and source-structure errors

Module 14: Close & Load options

- Load to an Excel table
- Create Connection Only queries
- Load to the Data Model where appropriate
- Load prepared data to a PivotTable
- Refresh queries and connected PivotTables