Spreadsheet Problem-Solving for Chemical Engineers (CH764VTL)
Virtual Course

Day 1
10:00 – 11:30[1] Session 1
Basic Spreadsheet Skills
- Configuring Excel for engineering calculations
- Efficient spreadsheet manipulations

12:00 – 1:30 Session 2
Basic Spreadsheet Skills
- Formulas, cell addressing, and range names
- Creating engineering graphs

2:30 – 4:00 Session 3
Process Calculations
- Dealing with engineering formulas and units
- Debugging spreadsheet calculations
- Flowsheet calculations including recycle streams

4:30 – 6:00 Session 4
Process Calculations
- Targeting calculations
- Case studies

Day 2
10:00 – 11:30 Session 1
Dealing with Data
- Table look-up and interpolation
    - Incorporating discrete table-lookup in engineering calculations
    - Continuous tables with linear interpolation

12:00 – 1:30 Session 2
Dealing with Data
- Quadrature and smoothing
- Excel's Data Analysis Toolpak
- Histograms and distributions
- Model building through curve-fitting

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[1] Note: Times given are Eastern time zone.

2:30 – 4:00 Session 3
Numerical Problem-Solving
- Solving algebraic equations and systems
  - Single nonlinear equations
  - Sets of linear equations
  - Sets of nonlinear equations
- Numerical solution of differential equations

4:30 – 6:00 Session 4
Numerical Problem-Solving
- Optimization calculations
- Capstone design calculations
- Process economic evaluation
  - Cash flow and profitability