

Spreadsheet Problem-Solving for Chemical Engineers (CH764VTL)

Virtual Course

Session 1

Basic Spreadsheet Skills

- Configuring Excel for engineering calculations
- Efficient spreadsheet manipulations
- Formulas, cell addressing, and range names
- Creating engineering graphs

Session 2

Process Calculations

- Dealing with engineering formulas and units
- Debugging spreadsheet calculations
- Flowsheet calculations including recycle streams
- Targeting calculations
- Case studies

Session 3

Dealing with Data

- Table look-up and interpolation
 - Incorporating discrete table-lookup in engineering calculations
 - Continuous tables with linear interpolation
- Quadrature and smoothing
- Excel's Data Analysis Toolpak
- Histograms and distributions
- Model building through curve-fitting

Session 4

Numerical Problem-Solving

- Solving algebraic equations and systems
 - Single nonlinear equations
 - Sets of linear equations
 - Sets of nonlinear equations
- Numerical solution of differential equations
- Optimization calculations
- Capstone design calculations
- Process economic evaluation
 - Cash flow and profitability