



**Course Title:** Spreadsheet Problem-Solving and VBA Programming Combo Course

<b>Course ID:</b>	<b>Course Type:</b>
CH767	Instructor-led (classroom) Course
<a href="http://www.aiche.org/ch767">http://www.aiche.org/ch767</a>	

**Course Schedule**

**Spreadsheet Problem-Solving for Chemical Engineers (CH765)**

**Day One**

<b>7:30 – 8:00</b>	Registration
<b>8:00 – 9:45</b>	Basic Spreadsheet Skills <ul style="list-style-type: none"><li>• Configuring Excel for engineering calculations</li><li>• Efficient spreadsheet manipulations</li><li>• Formulas, cell addressing and range names</li><li>• Creating engineering graphs</li></ul>
<b>9:45 – 10:15</b>	Morning Break
<b>10:15 – Noon</b>	Process Calculations <ul style="list-style-type: none"><li>• Dealing with engineering formulas and units</li><li>• Flow sheet calculations: recycle calculations</li><li>• Targeting calculations</li><li>• Case studies with data tables</li></ul>
<b>Noon – 1:00</b>	Lunch Break
<b>1:00 – 2:45</b>	Dealing with Data <ul style="list-style-type: none"><li>• Table look-up and interpolation</li><li>• Excel's Data Analysis toolbox</li><li>• Histograms and distributions</li><li>• Model building through curve-fitting</li></ul>
<b>2:45 – 3:15</b>	Afternoon Break

**3:15 – 5:00**

**Numerical Problem-Solving**

- Solving algebraic equations: single, linear sets and nonlinear sets
- Solving differential equations: ordinary sets and partial differential equations
- Optimization calculations
- Economic evaluation: cash flow and profitability measures

**Excel VBA Programming for Chemical Engineers (CH766)**

Day Two

**7:30 – 8:00**

Registration

**8:00 – 9:45**

Getting Started with VBA

- Configuring Excel for VBA programming
- The Visual Basic Editor environment
- Recording and editing macros
- Debugging tools

**9:45 – 10:15**

Morning Break

**10:15 – Noon**

User-defined Functions

- Programming user-defined functions (UDFs) for engineering formulas
- Including programming structure in UDFs
- Developing array functions and borrowing Excel functions
- Packaging collections of functions in an Excel Add-in

**Noon – 1:00**

Lunch Break

**1:00 – 2:45**

Delving into VBA Programming

- Communicating with Excel – object-oriented concepts
- Data types and scope
- VBA programming structures
- Modular programming organization

**2:45 – 3:15**

Afternoon Break

**3:15 – 5:00**

User Interfaces and VBA Applications

- Message boxes, input boxes and user forms
- Programming event handlers
- Integrating course concepts into an Excel/VBA application
- Interfacing with outside programs – process simulator example