CHEMCAD

Engineering Advanced

Process Simulation Software for UNIVERSITIES

CHEMCAD for Academics: Curriculum bundles or research licenses

Instructor Resources

Pre-built Lecture Aids A collection of PowerPoint slides that include notes of suggested talking points. Use as many or as few as you like to augment your existing curriculum.

Simulation example files with notes are built into the CHEMCAD installation, and divided into topics following typical ChemE curriculum. A printable PDF companion guide is available online.

Chemstations' YouTube channel includes Essentials videos for first-time users and shorter How-To demos to help students quickly become familiar with the CHEMCAD interface.

Online resources are gathered on our website for your reference.

License & Cost

CHEMCAD academic licensing provides full program capabilities, thermo models, and physical property database. An academic license provides unlimited copies for your computer lab, faculty, and student laptops (certain regional restrictions apply).

Our pricing model is very generous to academic budgets.

Did you know:

CHEMCAD was developed by a university as a teaching tool? It has been used in education since 1967.

Help students be workforce-ready. CHEMCAD is used in:

- Chemical EPC Firms
- Chemical Operations
- Government / Military
- Pharmaceutical
- Food & Beverage
- Power Generation
- ...and more!

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Innovative Engineering Education with CHEMCAD

Andrew Biaglow, United States Military Academy
West Point, New York, USA
Undergraduate Chemical Engineering Process Design

BACKGROUND

At the United States Military Academy (USMA), CHEMCAD is the primary chemical engineering design tool. The wide array of equipment models provided with CHEMCAD are essential for design, optimization, and troubleshooting chemical engineering processes. However, often, engineers must create custom models to handle unique operational or design scenarios, or when using proprietary models.

CHEMCAD offers a variety of flexible options for creating custom models, such as VBA and Excel. Excel spreadsheets can be embedded into CHEMCAD or manipulated with data mapping. This flexible approach enables chemical engineers to integrate external computational environments, allowing for the development of highly specialized and custom models tailored to unique engineering challenges while still taking advantage of the power of CHEMCAD.

CHALLENGES AND SOLUTIONS

One of the biggest challenges with using chemical engineering process modeling software is the rigid built-in equations and thermodynamic models. That is why CHEMCAD makes it easy to explore special cases by integrating custom models into the program. USMA is using Mathematica for manipulation and solution of custom equations for membrane separation processes and connecting to CHEMCAD with a data map.

The result is the creation of a very flexible function that can accept the process parameters and produce reliable results. The resulting function can be easily re-derived for new design conditions or can be embedded into various staging configurations.

ELEMENTS OF SUCCESS

The methods described here allow real-time integration of outside code into CHEMCAD. Since many student models are built with code while learning the theory, these models can then be easily integrated into CHEMCAD for process designs. In one example from a design course, USMA applied these methods to the solution of a packed-bed methanation reactor. Students found the model could be incorporated rapidly and, with the application of data-based modeling, saved weeks of time in terms of the incorporation of the reactor model into CHEMCAD.

These methods are well received by the students. USMA are in the process of developing further applications of this technique in other courses and design projects, and this will be an important part of the USMA chemical engineering curriculum moving forward.

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- Dr. Andrew Biaglow. Professor of Chemical Engineering

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Academic Success Story

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