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Virtual Classroom Catalog: gPROMS Process

Please find the current gPROMS Process virtual classroom schedule, along with descriptions of the available virtual classroom training offerings.

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Training dates

Dates	Training	Language	Time zone
There are no more virtual classroom training events scheduled in 2026 for this product. Please keep an eye out for an updated timetable for 2027 and marketing communications regarding campaign specific training events. If you'd like to request a virtual classroom training, please send an email to gproms.training.digital@siemens.com with the training you require, preferred dates, and the number of participants.			

Training descriptions

Global system analysis (GSA) (half day) [Available in English]

Global system analysis (GSA) allows the comprehensive exploration of the behavior of a system over domains of any user-selected subset of its input variables ('factors'), and output variables ('responses').

This provides a quick and easy way to explore the complex process design and operational decision space systematically via hundreds or even thousands of executions using high-fidelity models, rather than via point activities using manually repeated simulation runs.

Audience: The workshop is aimed at process engineers and technology managers from the Oil & Gas, Refining, Chemicals, Petrochemicals, Food & Beverage and Specialty Chemicals industries who have a strong interest in exploring the process design and operational decision space

Content: Siemens' GSA capabilities can be used to extricate value from virtually any existing gPROMS model. In this workshop, we will cover:

- How to define input factors and attribute uncertainty to these
- How to define output responses / key performance indicators of interest
- How global system analysis can make the most of available computational resources via the high-performance computing (HPC) option
- How to explore different types of analyses, including uncertainty analysis and sensitivity analysis
- How to easily inspect results using tables, histograms and scatter plots

Initialization Procedures: making models initialize robustly (half day) [Available in English]

Initialization procedures allow for a complex model to be constructed gradually, starting from a simpler form and increasing its complexity by lifting physical assumptions or changing the numerical formulation. When combined together in a flowsheet, these model units can be initialized individually one after the other via flowsheet initialization procedure.

This is providing a fast and reliant mean of converging complex model and constructing large flowsheets.

Audience: The workshop is aimed at process engineers from the Oil & Gas, Refining, Petrochemical, Food & Beverage and Specialty Chemicals industries who are experienced in custom modelling and are looking to increase the level of complexity of their model while ensuring a robust and fast initialization.

Content:

- How to set up an initialization procedure from scratch
- How to define a simplified set of equations for initialization
- How to change the choice of specification in a model
- How to construct a flowsheet to be initialized sequentially
- How to initialize a recycle loop

Advanced catalytic reactor design in gPROMS Process (half day)

[Available in English]

High-fidelity modelling is an essential tool for the optimization of catalytic reactor design and operation. However, most existing modelling tools use over-simplified reactor models and, in some cases, reactors are modeled separately using legacy codes.

gPROMS Process provides high-fidelity, multi-scale models of catalytic reactors, including catalyst models, that can be used for optimizing reactor design and operation, including geometry, configuration, and catalyst decisions.

Validated reactor models can then be combined with separation sections and other flowsheet models for process design and whole-plant optimization that simultaneously consider reactor and separation section design and operational decisions.

Audience: This workshop is aimed at reaction and process engineers and technology managers from the Chemicals & Petrochemicals industries who are interested in learning how to perform model-based detailed design of catalytic reactors.

Content:

- This workshop shows how gPROMS Process's reactor modelling capabilities can be used to design and optimize complex catalytic reactors.
- The aim is to assemble a simple flowsheet model of a natural gas reforming unit with a steam methane reformer using the reactor models in gPROMS Process's Advanced Model Library for Fixed-Bed Catalytic Reactors (AML:FBCR).
- NGR reactors involve complex reaction mechanisms controlled by intra-particle diffusion rates and with radial gradients of temperature and composition on the catalyst tube side; complex combustion or radiation phenomena take place on the heating side of the reactor. All of these can be accounted for using the AML:FBCR models.

Adsorption – effective design of a PSA system (half day)

[Available in English]

Cyclic separation processes such as pressure-swing adsorption (PSA) are fundamental to high-purity gas production. With extensive industrial applications, there is significant interest for methods and tools specifically aimed at the development and analysis of PSA units through process modelling.

gPROMS Process has state-of-the art adsorption libraries that allow for easy construction and specification of high-fidelity adsorption flowsheets. The gPROMS platform has long been a tool for modelling cyclic adsorption units which inherently have fast transients, discontinuities and flow reversal. A typical application of these systems is the production of high purity hydrogen (99.99+%).

Content:

- Setup a single bed for fixed adsorption step simulation
- Implement an isotherm model using custom modelling approach
- Validation of breakthrough simulation using experimental data
- Setup a self-interacting bed approach for efficient operational analysis

gPROMS[®] Process: Steady-state flowsheet modelling and optimization (1-day) [Available in English]

Understanding steady-state behavior of chemical processes using mathematical models is of great importance in the design and operation of chemical processes.

Recent technological advances allow process engineers to optimize the design and operation of chemical processes with multiple design and operational decisions, taking into account a wide range of process constraints relating to safety, availability of resources, equipment capacity, etc.

Audience: The course is aimed at chemical and process engineers who wish to start using gPROMS to create flowsheet models and use these to optimize the design and operation of continuous processes.

Content: This one-day course instructs attendees to effectively apply powerful optimization techniques to real problems relating to process design and process operation. It combines tutorials and hands-on problem-solving sessions. By the end of the course, participants will know how to:

- Define physical property calculations
- Using the built-in model libraries to develop flowsheet models, including
 - Reactive processes
 - Separation processes
 - Heat exchange and heat integration
 - Handling material recycles
- Execute a simulation and view results
- Perform a sensitivity analysis using built-in libraries as well as using the functionality known as Global System Analysis on an already-developed flowsheet
- Optimize the process using formal mathematical optimization techniques

The training course will use the latest released version of gPROMS Process.

gPROMS[®] Process: Dynamic flowsheet modelling and optimization (1-day) [Available in English]

Understanding transient behavior of chemical processes using mathematical models is of great importance in the design and operation of chemical processes. Accurately predicting process dynamics is particularly important for projects involving batch processes, plant startup/shutdown, product/feedstock changeovers, control system design, and others.

Audience: The course is aimed at chemical and process engineers who wish to start using gPROMS to create flowsheet models including process dynamics and use these to understand and improve the design and operation of batch, semi-batch and continuous processes.

Content: This one-day course instructs attendees to set up in gPROMS Process a dynamic process model of a typical chemical engineering process. It combines tutorials and hands-on problem-solving sessions. By the end of the course, participants will know how to:

- Include process dynamics in a process model (converting models from steady-state behavior into dynamics)
- Conveniently define plant operating procedures
- Execute a simulation and view results
- Set up and configure a control scheme
- Optimize the process using formal mathematical optimization techniques suitable for problems featuring dynamic behavior

Prerequisites: People interested in attending to this training course are required to register and attend to the course on "Steady-state flowsheet modelling and optimization" first.

gPROMS[®] Process Introduction (1-day) [Available in Japanese]

Understanding steady-state and transient behavior of chemical processes using mathematical models is of great importance in the design and operation of chemical processes.

Accurately predicting process dynamics is particularly important for projects involving batch processes, plant startup/shutdown, product/feedstock changeovers, control system design, and others. Recent technological advances allow process engineers to optimize the design and operation of chemical processes with multiple design and operational decisions, taking into account a wide range of process constraints relating to safety, availability of resources, equipment capacity, etc. And using real-world data to validate the model is an inherent part of the model development process.

Audience: The course is aimed at chemical and process engineers who wish to start using gPROMS[®] Process to create flowsheet models and use these to optimize the design and operation of batch, semi-batch and continuous processes.

Content: This course instructs attendees to effectively apply powerful optimization techniques to real problems relating to process design, process operation and model validation. It combines tutorials and hands-on problem-solving sessions. By the end of the course, participants will know how to:

- Define physical property calculations
- Using the built-in model libraries to develop flowsheet models, including
 - Reactive processes
 - Separation processes
 - Heat exchange and heat integration
 - Handling material recycles
- Execute a simulation and view results
- Perform a sensitivity analysis
- Optimize the process using formal mathematical optimization techniques
- Conveniently define plant operating procedures
- Set up and configure a control scheme
- Validate your models