MERCURY

Aspen HYSYS Training Course

25 January – 5 February 2027
Cairo (Egypt)



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Ref: 15240_335936 **Date:** 25 January – 5 February 2027 **Location:** Cairo (Egypt) **Fees:** 6500 Euro

Introduction to Aspen HYSYS:

The Process Modeling MBA in Aspen HYSYS training course is for individuals with a chemical or process engineering background, those in the oil and gas industry, or petroleum refining.

This Aspen HYSYS basics training emphasizes the foundational knowledge and skills for handling steady-state simulation within the Aspen HYSYS environment, preparing participants for an Aspen HYSYS certification course.

Participants will gain comprehensive knowledge and hands-on experience with Aspen HYSYS training, ensuring they learn Aspen HYSYS both theoretically and practically. Thus, they will be well-prepared for various industrial applications this powerful simulation software uses.

Targeted Groups:

- Process Engineers with experience in Process simulation.
- New engineering graduates/technologists will use Aspen HYSYS in their daily tasks.
- Process engineers engaged in process design and optimization projects and studies.
- Plant engineers monitor plant performance under varying conditions.
- R&D engineers and researchers are employing Aspen HYSYS for process synthesis.

Course Objectives:

By the conclusion of this Aspen HYSYS course, participants will acquire the ability to:

- Build, navigate, and optimize process simulations using Aspen HYSYS, enhancing their Aspen HYSYS training.
- Employ different HYSYS functions to construct advanced steady-state process simulations efficiently.
- Leverage the intuitive solving capabilities and other critical features of Aspen HYSYS for quick and effective Flowsheet construction.
- Engage with the Workbook and Flowsheet interfaces for rapid and efficient modeling.
- Understand how the multi-flowsheet integration can streamline and organize simulation efforts within Aspen HYSYS.
- Utilize various approaches to result reporting, including Microsoft Excel VB macros.
- Leverage the rating capabilities of Aspen HYSYS to assess the performance of existing equipment.
- Tackle and troubleshoot common problems and improve the convergence of columns and flowsheets.
- Conduct Case studies to find the optimal operating conditions for processes.
- Comprehend pipeline hydraulics calculations for sizing gas gathering systems.

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Targeted Competencies:

After this Aspen HYSYS training, participants' competencies will:

- Understand process simulation fundamentals.
- Know how to be proficient in the Aspen HYSYS user interface.
- Learn about the ability to create and manipulate process simulations.
- Understand Competence in building and modifying process flowsheets.
- Skill in using thermodynamic models and property methods.
- Explore the capability to perform heat and material balances.

Course Content:

Unit 1: Propane Refrigeration Loop:

- Construct flowsheets by adding and connecting operations.
- Manipulate the graphic interface to clarify process representation.
- Understand forward and backward information propagation.
- Transform simulation cases into templates.
- Workshop: Building and analyzing a propane refrigeration loop simulation.

Unit 2: Refrigerated Gas Plant:

- Install and converge heat exchangers.
- Utilize logical operations such as Adjust and Balance.
- Workshop: Modeling a simplified version of a refrigerated gas plant.

Unit 3: NGL Fractionation Train:

- Model distillation columns with the Column Input Expert.
- Tailor column specifications to process constraints.
- Assess utility requirements with the Process Utility Manager.
- Workshop: Modeling an NGL recovery plant with two distillation columns.

Unit 4: Oil Characterization and HP Separation:

- Intro to Oil Characterization in Aspen HYSYS.
- Implement the Aspen HYSYS Spreadsheet and Case Study functionalities.
- Workshop: Characterize crude oil and study the GOR variation with pressure using the spreadsheet operation.

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Unit 5: Gas Gathering System:

- Simulate a gas gathering system using the steady-state capabilities of Aspen HYSYS.
- Workshop: Utilizing the pipe segment and Hydraulics subflowsheet for modeling a piping network.

Unit 6: Two-Stage Compression:

- Intro to the use of recycling operations within simulations.
- Recognize appropriate locations for recycling.
- Apply performance curves to rotating equipment.
- Workshop: Implementing a two-stage compression flowsheet with active compressor curves.

Unit 7: Natural Gas Dehydration with TEG:

- Review methods to saturate hydrocarbon streams.
- Discuss hydrate formation and inhibition techniques.
- Model a TEG dehydration unit.
- Workshop: Investigating the impact of methanol injection on hydrate formation using a TEG dehydration model.

Unit 8: Rating Heat Exchangers:

- Explore heat transfer calculations in Aspen HYSYS.
- Configure shell and tube heat exchangers to employ Rating models.
- Integrate EDR calculations into flowsheets.
- Workshop: Assessing if heat exchangers meet process requirements using Rating models and EDR within Aspen HYSYS.

Unit 9: Troubleshooting / Best Practices:

- Highlight best practices for product integration and automation.
- Investigate simulation issues and troubleshoot them.
- Identify suitable thermodynamic models.
- Learn about tips for debugging simulations and columns.
- Workshop: Troubleshooting Aspen HYSYS cases and identifying common issues.

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Unit 10: Reporting in Aspen HYSYS:

- Create custom reports using the Report Manager.
- Access and use Excel utilities for simulation data extraction.
- Employ the Aspen Simulation Workbook to integrate models with Excel.
- Workshop: Generating custom reports using Report Manager, Excel utilities, and Aspen Simulation Workbook.