MESOL Global

A Potential Hub To Deliver Dynamic Professionals!

Training Courses 2026

www.omesolglobal.com

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About Us

Imagine the possibilities of what we can do for you

Omesol Global is a project of [Octagon Management & Engineering Solutions]. Omesol is one of the world's leading and most diverse providers of training and consultancy services. We are recognized locally and globally for maintaining high quality standard, on-time service delivery and client specific solutions. Our global representation network is continuously expanding; the major countries in our network are USA, UK, Australia & Pakistan.

We are involved in a wide range of activities in the chemical, petrochemical, polymer and the oil and gas industries. Our core business areas include training & development, engineering, management and web based solutions. We have a professional team with extensive experience in handling small to large size projects with the support of latest advanced software.

Testimonials

Here's what some of our previous clients have said about the impact of our training programs.

I took the Process Design Engineering (ENG 101) after finishing the Aspen Hysys Basic class. During this half-month class I got and learnt a lot of very useful and practical knowledge about the oil &gas process design and simulation. The module materials are very informative and well organized which make me very easy to understand. Also thanks a lot to my instructor Jenny for her patience to answer any doubts I have during the class. Furthermore the supplementary material for each module is very helpful to give me more detailed information about each module content. In general I am very satisfied and comfortable with this class and it is beyond my expectation.

- YUECUN LOU (Terry)
Graduate Assistant (Ph.D) at University of Toledo

HYSYS offered here is a Great course for new engineers and great refresher for the experienced people.....Do it if you are looking for Value for your Money!!

- ANKIT VYAS
Process Engineer, Calgary (Canada)

My co-worker and I took the Process Simulation & Modeling Aspen Hysys Advance course. It was a very useful and interesting course, and the instructors were very flexible to adapt the topics and schedules according to our needs.

- Facundo Sala

Process Engineer (Buenos Aires) Argentina

Great course. My instructor did his best to make sure, I understood everything.

- Echezona I.Nwankwo
Houston, USA

I consider OMESOL a great on-line institute for anybody who wants to improve his / her knowledge about Process Engineering and a lots of other trainings. Please, go ahead and book any training you want, you will really enjoy the courses and the way the teachers teach their lessons. Thanks a lot OMESOL Team and I would like to say a special thanks to my teachers for the great job they have done during my courses. Again, if you want to learn on-line, I recommend OMESOL.

- Estêvão Adriano Tibúrcio
Angola LNG (OPCO)

The digital information and supporting documents provided by the instructor were valuable for better understanding of the course. The instructor always cordially answered all the question that I came in with during the course.

- Ana Maria Ortiz
Process Engineer Calgary, Canada

It was really good experience of online learning of HYSYS. Classes were fully interactive with enough time for clarifications. It is a good opportunity for working professionals as essay to manage classes, learning at the same time to practice on real cases.

- Iqbal Cheema
Manager Operations, Sohar Refinery (ORPIC), Oman
More

Training Courses

Process Simulation & Modeling Aspen Hysys Basic

Training Mode Online Course **Duration** 14 Hours **Fee** 330 USD

Objectives

- Learn to build, navigate and optimize process simulations using Aspen Hysys
- Learn the efficient use of different Hysys functions to build steady state process simulations

Who Will Benefit

- New engineering graduates/technologists who will be using Aspen Hysys in their daily work
- Process engineers doing process design and optimization projects and studies
- Plant engineers checking plant performance under different operating conditions
- R&D engineers and researchers using Aspen Hysys for process synthesis

Course Detail

Starting with Hysys

- Creating a new simulation
- Simulation basis manager
- Adding components to the simulation
- Selecting a fluids package
- Enter simulation environment
- Adding material streams
- Case study

Equations Of State

- Equations of state – mathematical formulations
- Determine the specific volume of a pure component or a mixture with Hysys
- Compare the results obtained with different EOS preview the result using workbook
- Analyze the property using case studies

Pump Operation In Hysys To Model The Pumping Process

- Connect streams to unit operations
- Determine the pump efficiency and outlet temperature
- Adding unit operations
- Connecting unit operation with streams
- Case study & further study

Compressor Operation In Hysys To Model The Compressing Process

- Define a new component using hypothetical
- Determine the compressor efficiency and outlet temperature
- Case study & further study

Expander Operation In Hysys To Model The Expansion Process

- Determine the expansion efficiency and outlet temperature
- Case study & further study

Heat Exchanger Operation In Hysys To Model The Heat Transfer Process

- Problem analysis
- Building the simulation
- Case study & further study

Flash Separator Operation In Hysys To Model The Flash Separation Process

- Problem analysis
- Building the simulation
- Adding a feed stream
- Adding a compressor
- Adding a cooler
- Adding a flash separator
- Case study & further study

Partial Oxidation Reaction Of Methane To Produce Hydrogen

- Develop a model that represents partial oxidation of methane to produce hydrogen
- Simulate conversion reactor and reactions
- Add the reactions and reaction sets
- Attach reaction sets to the fluid package
- Making sequential reactions
- Case study

Develop A Model That Represents The Water Gas Shift Reaction

- Simulate equilibrium reactor and reactions in Hysys
- Re-add the reactions and reaction sets
- Attach reaction sets to the fluid package
- Print stream and workbook datasheets
- Problem analysis & a case study
- Production of propylene glycol

Simulate continuously-stirred-tank reactor and reactions in Hysys

- Set new session preferences
- Creating a new unit set
- Providing binary coefficients
- Defining the reaction
- Installing the mixer
- Installing the reactor
- Case study

Absorber Operation In Hysys To Model The Absorption Process

- Problem analysis
- Running the simulation
- Changing trays to packing
- Getting the design parameters
- Case study & further study

Recovery Of (NGL) From Natural Gas

- Add columns using the input experts
- Add extra specifications to columns
- De-Methanizer operation
- De-Ethanizer operation
- De-Propanizer operation
- Adding a valve
- Case study

Process Simulation & Modeling Aspen Hysys Advance

Training Mode	Online Course	**Duration**	20 Hours	**Fee**	440 USD

Objectives

- Learn how to use and apply advanced modeling techniques to enhance existing Aspen Hysys flow sheets
- Develop the skills and "know-how" required for creating and running dynamic simulations using Aspen Hysys dynamics
- Determine optimal process conditions for new or existing processes

Who Will Benefit

- New engineering graduates / professionals who will be using Aspen Hysys in their daily work
- Process engineers doing process design and optimization projects and studies
- Plant engineers checking plant performance under different operating conditions
- R&D engineers and researchers

Course Detail

Getting Started In Steady State

- Define a fluid package
- Add streams and operations
- Case study: introduction to the basic concepts necessary for creating, solving and analyzing simulations in Aspen Hysys

Oil Characterization

- Introduce oil characterization in Aspen Hysys
- Analysis of chromatographic data
- Case study: use the oil environment to characterize a crude assay

Rating & Sizing Of Heat Exchangers

- Review heat transfer calculation models in Aspen Hysys
- Configure a shell and tube heat exchanger to use a built-in rating model
- Case study: use a rating model to determine if an existing heat exchanger will meet process specifications; design and rate a heat exchanger.

Expanding The Model

- Add unit operations and controllers in dynamic mode
- Develop appropriate control strategies using split range and on-off controllers
- Case study: add equipment, modify the control system and add a pressure relief valve to a simulation directly in dynamic mode

Pressure Drop Calculation

- Introduce unit operation models used to change pressure, such as pipe sizing
- Utilization of property table
- Case study: simulate various unit operations

Operation Of Safety Valves

- Size and rate pressure safety valves to safely meet plant
- Case study: usage of utilities & simulation

Process Column Optimization

- Optimize the process column to increase the profitability.
- Case study: simulate process column with optimization mode

Spreadsheets And Case Studies

- Use a spreadsheet to calculate a simplified profit for the process column.
- Case study: import and export variables to and from the spreadsheet; add complex formulas. Use the case study to evaluate flow sheet

Complete Dynamic Simulation

- Solve complete dynamic problems using Aspen Hysys software by first building a steady-state flow sheet and then performing steps to make the transition to dynamics.
- Case study: simulation includes problem analysis and solution for separation system

Logical Operation

- Introduction to logical operations,
- Case study: simulation to utilize logical operation for the better results

Aspen Hysys For Oil & Gas People

Training Mode	Online Course	**Duration**	30 Hours	**Fee**	880 USD

Objectives

- Learn to build, navigate and optimize process simulations using Aspen Hysys
- Learn how to use and apply advanced modeling techniques to enhance existing Aspen Hysys flow sheets
- Learn the efficient use of different Hysys functions to build steady state process simulations
- Develop the skills and techniques required for creating and running dynamic simulations
- Apply the best practices for transitioning from steady-state to dynamic modeling and discover shortcuts for efficient use of Hysys dynamics.

Who Will Benefit

- New engineering graduates/technologists who will be using Aspen Hysys in their daily work
- Process engineers who need advanced skills for more complex modeling tasks
- R&D engineers and researchers using Aspen Hysys for process synthesis, upgrade or modifications
- Process engineers doing process design and optimization projects and studies
- Plant engineers checking plant performance under different operating conditions
- Engineers with Aspen Hysys experience
- Non-engineers / engineers with no or limited previous experience in process simulation

Course Detail

Getting Started

- Create and define a fluid package
- Utilize the built-in expert system to choose an appropriate thermodynamic model
- Select components, including hypothetical
- Install streams and attach stream utilities
- Customize the workbook
- Case study: introduce basic concepts necessary for creating simulations in Aspen Hysys.

Propane Refrigeration Loop

- Add and connect operations to construct a simple flow sheet
- Use the graphic interface to manipulate flow sheet objects and provide a clearer representation of the process
- Understand how process information is propagated both forwards-and backwards
- Convert simulation cases to templates
- Case study: build and analyze a propane refrigeration loop simulation

Oil Characterization And HP Separation

- Introduce oil characterization in Aspen Hysys
- Use the Aspen Hysys spreadsheet and case study functionality
- Case study: use the oil environment to characterize a crude assay and then employ the case study and spreadsheet operation to determine how the gas oil ratio (GOR) varies with pressure.

Two Stage Compression

- Introduce the use of the recycle operation
- Recognize suitable recycle locations
- Implement performance curves for rotating equipment
- Case study: utilize the recycle operation to build a two stage compression flow sheet; define and activate compressor curves.

Natural Gas Dehydration With TEG

- Review the recommended methods to saturate single phase and two phase hydrocarbon streams
- Discuss the implications of hydrate formation and the different means available to avoid hydrate problems

Model A Typical TEG Dehydration Unit

- Case study: model a typical TEG dehydration unit and determine water dew point for the dry gas; use the hydrate utility to investigate the effects of methanol injection on hydrate inhibition.

Gas Gathering System

- Simulate a gas gathering system located on varied terrain using the steady state capabilities of Aspen Hysys
- Case study: use the pipe segment and the hydraulics sub-flow sheet to model a piping network in Aspen Hysys.

Refrigerated Gas Plant

- Install and converge heat exchangers
- Use logical operations: adjust and balance
- Case study: model a simplified version of a refrigerated gas plant.

NGL Fractionation Train

- Model distillation columns with the assistance of the column input expert
- Manipulate column specifications to better represent process constraints
- Evaluate utility requirements using the process utility manager
- Case study: model a two column natural gas liquid (NGL) recovery plant

Transitioning From Steady State To Dynamics

- Provide a theoretical overview of the Aspen Hysys dynamics pressure/flow solver
- Define dynamic pressure/flow specifications and equipment sizing data
- Review the solving strategy and degrees of freedom analysis of Hysys dynamics
- Utilize the dynamics assistant to check the preparedness of a simulation for dynamic calculations
- Case study: convert a steady- state Aspen Hysys simulation a Hysys dynamics simulation

Controllers And Strip Charts

- Review basic process control theory and methodology
- Discuss the commonly used controller operations in Hysys dynamics
- Add strip charts to monitor and graph key process variables
- Case study: introduce PID controllers and strip charts to augment an Aspen Hysys dynamics simulation

Dynamic Column Modeling

- Review the procedure for converting a steady state model into dynamics
- Prepare a distillation column for dynamic simulation by using a tray sizing analysis
- Model an LPG distillation column in dynamics and develop an effective control strategy
- Case study: set up a distillation column in steady state mode, transition back into dynamics, and operate the distillation column as a dynamic unit operation

Expanding The Model

- Follow best practices for adding dynamic specifications, unit operations and controllers in the dynamic mode
- Develop appropriate control strategies using split range and on- off controllers
- Install a relief valve for vessel overpressure protection
- Case study: add equipment, modify the control system and add a pressure relief valve to a simulation directly in dynamic mode

Column Pressure Relief

- Modify the condenser overhead section of a distillation column to include an air cooled exchanger operation
- Further develop model-building techniques and best practices by adding operations and controllers in the dynamic mode
- Install a relief valve for protection of the column overhead system
- Case study: set up a customized distillation column overhead condenser system and protect it from overpressure with a relief valve

Reporting In Aspen Hysys

- Create a variety of customized reports using newly added functionality in the report manager
- Access free Excel utilities designed to extract simulation data
- Use Aspen simulation workbook to deploy models in Microsoft Excel
- Case study: use the report manager, Excel utilities and Aspen simulation workbook to obtain custom reports.

Dynamic Process Modeling By Using Aspen Hysys / UniSim

Training Mode Online Course **Duration** 10 Hours **Fee** 440 USD

Objectives

- Develop the skills and techniques required for creating and running dynamic simulations
- Build dynamic models of various unit operations, including distillation column control
- Learn the best practices for transitioning from steady-state to dynamic modeling

Who Will Benefit

- Professionals
- Fresh Graduates
- Students

Prerequisites

- Familiarity with Aspen HYSYS / UniSim Design steady-state modeling concepts and Aspen HYSYS / UniSim Simulation Workbook
- Or previously attended Process Simulation & Modeling Aspen Hysys Basic Course / Steady State Process Simulation Basics By Using UniSim Course

Course Detail

Getting Started in Steady State

- Review the fundamental steps and requirements for building a steady-state model in Aspen HYSYS / UniSim
- Learn about a variety of shortcuts, tips and tricks
- Develop a steady state module for transitioning purpose

Transitioning from Steady State to Dynamics

- Understand the requirements of Aspen HYSYS / UniSim Dynamics Pressure/Flow Solver
- Define dynamic pressure/flow specifications and equipment sizing data
- Review the solving strategy and degrees of freedom analysis of HYSYS / UniSim Dynamics
- Utilize the Dynamics Assistant to check the preparedness of a simulation for dynamic calculations
- Convert a steady-state Aspen HYSYS / UniSim simulation a HYSYS / UniSim Dynamics simulation

Controllers and Strip Charts

- Review basic process control theory and methodology
- Discuss the commonly used Controller operations in HYSYS / UniSim Dynamics
- Add Strip Charts to monitor and graph key process variables
- Introduce PID controllers and Strip Charts to augment an Aspen HYSYS / UniSim Dynamics simulation

Dynamic Column Modeling

- Review the procedure for converting a steady state model into dynamics
- Prepare a distillation column for dynamic simulation by using a Tray Sizing analysis
- Model a distillation column in dynamics and develop an effective control strategy
- Set up a distillation column in steady state mode, transition back into dynamics, and operate the distillation column as a dynamic unit operation

Expanding the Model

- Follow best practices for adding dynamic specifications, unit operations and controllers in the dynamic mode
- Develop appropriate control strategies
- Add equipment and modify the control system in simulation directly in dynamic mode
- Model rotating equipment in the dynamic mode and apply performance curves to better represent the dynamic behavior

Column Pressure Relief

- Modify the condenser overhead section of a distillation column to include an Exchanger operation
- Further develop model-building techniques and best practices by adding operations and controllers in the dynamic mode
- Install a relief valve for protection of the column overhead system
- Set up a customized distillation column overhead condenser system and protect it from overpressure with a relief valve

Event Scheduler

- Implement the Event Scheduler to build automated sequences in HYSYS / UniSim Dynamics
- Set up a scenario for a vessel and implement process safety measures via the Event Scheduler

Dynamic Compressor Surge Analyses

- Model compressors using performance curves
- Set up a compressor to perform dynamic surge analyses
- Run surge analysis with different dynamic scenarios (HYSYS)

Aspen Plus: Process Modeling

Training Mode Online Course **Duration** 14 Hours **Fee** 330 USD

Objectives

- Gain the practical skills and knowledge to begin modeling new and existing processes
- Learn some practical techniques for building and troubleshooting flowsheet simulations
- Reduce process design time by testing various plant configurations
- Determine optimal process conditions to improve current processes

Who Will Benefit

- New engineering graduates/technologists who will be using Aspen Plus in their daily work
- Process engineers doing process design and optimization projects and studies
- Plant engineers checking plant performance under different operating conditions
- R&D engineers and researchers using Aspen Plus for process synthesis

Course Detail

Starting with Aspen Plus

- Introduction to Aspen Plus
- Develop a working knowledge of the Aspen Plus Property Environment
- Develop a working knowledge of the Aspen Plus Simulation Environment
- Review major types of unit operation models
- Learn to enter Components and Property Method for a process flowsheet
- Build a process flowsheet and enter stream and block information in an Aspen Plus simulation
- Data input and running the simulation
- Convergence and presentation of flowsheet results
- Review the save options for Aspen Plus models
- Explore flowsheet handling techniques

Physical Properties

- Key considerations in choosing a property method and review physical property parameters
- Learn how to choose an appropriate Property Method to represent single chemical or mixture
- Finding Thermophysical Properties & Generating T-x-y Diagrams

Modeling of Pumps, Compressors, Valves and Pipes

- Modeling of pump
- Usage of curve data
- Modeling of compressor
- Modeling of pipes and valves
- Case study: How different schedule numbers and nominal diameter affect the pressure drop in a pipe.

Flash Separator Operation In Aspen Plus Software

- Problem analysis
- Building the simulation
- Adding a flash separator
- Case study

Heat Exchangers Operation In Aspen Plus Software

- Shortcut heat exchanger method
- Detailed heat exchanger method
- Heater modeling
- Case study

Custom Component Definition In Aspen Plus Software

- Problem analysis
- Requirements of custom components in Aspen Plus Software
- Defining custom component

Reactions And Reactors Modeling In Aspen Plus Software

- Introduce the various classes of reactor models available in Aspen Plus Software
- Production of Ethylene Acetate
- Define different type of reactions
- Model different type of reactors
- Usage of process manipulator option
- Case Study: Compare the performance of different reactors

Modeling Distillation Towers

- Modeling DSTWU (Distillation Tower)
- Modeling Radfrac (Distillation Tower)
- Column sizing
- Case study: Set up a methanol - water distillation tower model

Modeling Of Process Plant

- Apply acquired skills to build a Chlorobenzene production flowsheet
- Case Study: Create a flowsheet to model a chlorobenzene production process

Sensitivity Analysis

- Become familiar with referencing flowsheet variables (accessing variables), which is used in sensitivity analysis, design specifications and calculator block
- Use a sensitivity analysis to study relationships between process variables
- Case study: Use a sensitivity analysis feature

Design Specification

- Introduce the use of design specifications to meet process design requirements
- Case study: Use a design specification in the example flowsheet

Calculator Block

- Introduce use of Calculator block for flowsheet calculations
- FORTRAN code writing option
- Case study

Aspen HYSYS Certified User Program

(User Certification Exam Preparation)

Training Mode Online Course **Duration** 24 Hours **Fee** 440 USD

Objectives

- Learn to build, navigate and optimize process simulations using Aspen Hysys
- Learn the efficient use of different Hysys functions to build steady state process simulations

Audience

- New engineering graduates/technologists who will be using Aspen Hysys in their daily work
- Process engineers doing process design and optimization projects and studies
- Plant engineers checking plant performance under different operating conditions
- R&D engineers and researchers using Aspen Hysys for process synthesis
- Engineers preparing for the Aspen HYSYS User Certification exam

Benefits

Upon successful completion of this course, you will be able to:

- Build and optimize steady state simulation models
- Define and manage crude oil assay information and properties
- Generate rigorous heat exchanger models from Aspen HYSYS to produce the most optimal designs at the right economics
- Model pipeline networks and mitigate the risk for flow assurance issues
- Design, revamp and debottleneck process equipment
- Troubleshoot common convergence problems and use best practices

Pre-requisites

- A background in chemical/process engineering, oil/gas industry, or in petroleum refining

Key Features

- Live, online expert-led sessions, hands-on workshops and interactive online discussion
- Get internationally recognized certificate
- Life time access to video recording and study material

Course Detail

Process Simulation Overview

- Identify the benefits of process simulation
- Describe the capabilities of Aspen HYSYS
- Introduce the Aspen HYSYS graphical user interface
- Workshop: Introduce basic concepts necessary for creating simulations in Aspen HYSYS

Properties Environment

Component List

- Create a component list
- Identify the different component databases available
- Add hypothetical components

Physical Property Package

- Define a fluid package
- Identify the different property methods databases available
- Assign component list to specific property method

Petroleum Assays

- Identify the methods available in Aspen HYSYS for characterizing crude assay
- Necessary steps to characterize a crude assay
- Recognize the differences between the two methods available for characterizing crude assay
- Workshop: Use the Assay Management tools to characterize a crude assay

Simulation Environment

Unit Sets

- Recognize the default unit sets
- Customize unit sets

Manipulate Flowsheet

- Connect material streams to unit operations
- Illustrate flowsheet object color scheme
- Display stream labels
- Configure and customize user preferences, options and default settings
- Illustrate case management options
- Create and install a template file
- Workshop: Build and analyze a propane refrigeration loop and incorporate multiple flowsheet architecture

Mathematical / Logical Operations

- Identify various logical operations available
- Optimize the simulation by using adjust operation and other logical operations
- Workshop Gas Dehydration (O&G Focus): Model a typical gas dehydration unit and study gas saturation, hydrate formation conditions, and unit operation performance throughout the model

Unit Operations

- Separation Operations
- Identify the key differences in the three separator operations
- Illustrate pressure drop specifications across the vessel
- Specify and calculate heat loss in the vessel
- Configure and calculate the carry over model in separator operations
- Define and specify geometry and orientation of vessel
- Configure a component splitter to separate component steams based on split fractions specified

Heat Transfer Operations

- Identify various heat transfer operations
- Determine parameters required to solve a cooler
- Describe the different heat exchanger models
- Analyze the performance of the heat exchanger
- Identify the heat transfer operations that can be integrated with Aspen Exchanger Design and Rating (EDR) tools
- Work Shop: Perform rigorous heat transfer calculations using EDR

Piping Operations

- Recognize pressure drop correlation options for different phases
- Identify different heat transfer options for pipe segment
- Identify different flow assurance for pipe segment
- Build a piping network using pipe segments
- Workshop Gas Gathering (O&G Focus): Use the Pipe Segment and its built-in Flow Assurance tools to model and study a piping network in Aspen HYSYS

Column Operations

- Column templates
- Determine parameters required to solve a column
- Identify different types of column specifications available
- Analyze the Degrees of Freedom (DOF) of different column
- Identify the side operations available to be added to a column
- Function of column internal analysis
- Build different types of columns using column input expert and manipulate the column specification to meet the process objective
- Develop the column using Sides Ops input expert
- Workshop: Model an LNG production process
- Workshop: Model an LPG production process
- Workshop Atmospheric Crude Column (Refinery Focus): Construct, run, manipulate, and analyze an atmospheric crude distillation column

Rotating Equipment

- Identify the rotating equipment in HYSYS
- List the different compressor operating modes in HYSYS
- Identify what kind of compressor curves can be added in the model
- Build a compressor flowsheet using compressor performance curves to simulate an existing compressor
- Illustrate linking compressors and expanders
- Workshop: Utilize the Recycle operation to build a two stage compression flowsheet; define and activate compressor curves thus modeling a HYSYS compressor with real-world data

Stream Analysis

- List the different stream analysis types
- Identify the different ways to add the stream analysis
- Perform stream analysis to acquire more stream information

Equipment Design

- Identify the calculation type for pipe sizing
- Identify the available specification for vessel sizing

Case Study

- Identify four case study types and their differences
- Identify case study reporting tools
- Monitor the key process variable response to other changes in process using case study
- Workshop: Syngas production from natural gas and Case Study features to determine optimum configuration

Reporting

- Common Reporting Options
- Common reporting options
- Identify what kind of reports can be added to the flowsheet

HYSYS Workbook

- Identify the ways of exporting workbook reports
- Customize the workbook to view additional properties and add it to the flowsheet
- Generate Excel reports from the HYSYS Workbook

Report Manager

- List what kind of reports can be exported by Report Manager and Datasheets

Correlation Manager

- Identify how to manage the properties/correlations displayed for a stream
- Customize properties/correlations for all streams using Correlation Manage

Data Tables

- Monitor the key process variables of any type in the simulation by using Data Table
- Identify the ways of using Data Table

Troubleshooting

- Recognize the various troubleshooting tips
- Identify the methods of troubleshooting
- Explain the Consistency Error table
- Troubleshoot the prepared simulations using common methods
- Workshop: Troubleshoot a series of Aspen HYSYS simulations and implement various best practices to get these simulations to solve properly

Documentation

- Use the Help Menu

Aspen HYSYS Certified Expert User Program (Expert User Certification Exam Preparation)

Training Mode	Online Course	**Duration**	30 Hours	**Fee**	660 USD

Objectives

- Learn how to use and apply advanced modeling techniques to enhance new and existing Aspen HYSYS flowsheets.
- Learn the efficient use of different Hysys functions to build steady state process simulations

Audience

- Process engineers who need advanced skills for more complex modeling tasks.
- Current HYSYS users looking to build upon their knowledge of basic steady-state procedures in Aspen HYSYS.
- Engineers preparing for the Aspen HYSYS Expert User Certification exam.

Benefits

- Upon successful completion of this course, you will be able to:
- Build and optimize steady state simulation models
- Perform complex calculations and analysis using the Spreadsheet operation and Case Study tool
- Create custom column configurations.
- Model pipeline networks and mitigate the risk for flow assurance issues
- Design, revamp and debottleneck process equipment
- Troubleshoot common convergence problems and use best practices
- Pre-requisites
- Previously attend ACU101 Aspen HYSYS Certified User Program training course, or Familiarity with basic Aspen HYSYS steady-state process modeling techniques.

Key Features

- Live, online expert-led sessions, hands-on workshops and interactive online discussion
- Get internationally recognized certificate
- Life time access to video recording and study material

Course Detail

Midstream applications in Aspen HYSYS

Acid Gas Process Overview & Workflow

- Identify the components supported by Acid Gas Fluid Packages
- Identify the characteristics of the Acid Gas Fluid Packages
- Demonstrate the key differences between the available Acid Gas Column calculation options and illustrate how to set up the column for these calculations.
- Locate result forms exclusive to the Acid Gas columns
- Troubleshoot common acid gas column convergence issues.
- Summarize the most commonly used unit operations in acid gas cleaning processes.
- Configure case studies using variables from the acid gas unit operations
- Demonstrate how to configure acid gas makeup blocks
- Perform detailed sizing and rating calculations using the Column Analysis workflow for your acid gas column.

Gas Dehydration Process Overview & Workflow

- Recognize which Fluid Packages are suitable for gas dehydration systems
- Review methods for saturating a hydrocarbon stream with water in Aspen HYSYS
- Identify the workflow to calculate Water Dew Point of a stream
- Utilize the Hydrate Formation Analysis to calculate hydrate formation temperatures and pressures
- Identify the supported hydrate inhibitors in Aspen HYSYS
- Set up the necessary unit operations to model a typical gas dehydration unit and study gas saturation.
- Analyze and display the results to further optimize the dehydration process.

Sulfur Recovery (SULSIM) Process Overview & Workflow

- Identify the characteristics for the Sulsim Fluid Package
- Explore the unit operations that conform different stages involved in sulfur recovery process.
- Configure the thermal and catalytic stages process units available in Sulsim.
- Specify Reaction Furnace Parameters and select an Empirical Furnace Model appropriate for your feed conditions.
- Define Degasser and Tail Gas Treating Section unit operations.
- Create or import Sulfur Recovery Unit (SRU) sub-flowsheets.
- Review the performance summary form to explore the various production and efficiency values for the trains and stages.
- Specify an Air Demand Analyzer and how to set up and run it.

- Build the SRU flowsheet using Add Combinations group to add a group of unit operations organized in pre-configured topologies for the thermal, catalytic and tail gas treating sections.

Sour Water Process Overview & Workflow

- Recognize which Fluid Packages are suitable for systems with acid water
- Identify the characteristics of the Sour Water Fluid Packages
- Identify the phenomena on the components and ions in Sour Water systems
- Identify the key differences between the available calculation options and illustrate how to set up the Sour Water Stripping Column Parameters.

Upstream applications in Aspen HYSYS

Aspen HYSYS Pipe Segments

- Identify the different pipe models available in Aspen HYSYS and their respective applications
- Summarize the available pressure drop correlations and the workflow to adjust it in a pipe segment
- Locate the different result sections available in the pipe segment operation
- Identify the available heat transfer calculations to calculate heat loss in a pipe and recognize the workflow to configure each
- Summarize the available flow assurance analysis on the pipe operation and the steps to configure them

Lines Sizing Utility

- Illustrate the functionality of the Line Sizing utility
- Summarize the workflow to run this analysis

Hydraulics

- Distinguish between the key differences of Aspen HYSYS Pipe Segment and Aspen Hydraulics
- Identify the types of systems that can be best represented using Aspen Hydraulics
- Recognize the supported fluid packages in Aspen Hydraulics and the workflow to change the default model
- Identify the available heat transfer calculations to calculate heat loss in a pipe and recognize the workflow to configure each
- Summarize the available flow assurance analysis on the pipe operation and the steps to configure them
- Configure the flowsheet constraints in an Aspen Hydraulics Model

Safety Analysis in Aspen HYSYS

General

- Illustrate the workflow and steps required to create and configure a PSV

Scenarios

- Illustrate the steps that should be followed to configure a scenario
- Recognize the scenarios that allow relieving flow calculations
- Identify the application of each sizing method based on scenario conditions

Fire Scenarios

- Illustrate the steps that should be followed to configure a fire scenario
- Identify the available flow calculation methods for vessels with Liquid, Vapor and Supercritical fluids
- Illustrate how to obtain the relieving composition for fire scenarios
- Multiple relief devices
- Recognize when it is required to use multiple relieving devices to protect an equipment
- Illustrate the workflow to add and configure multiple valves for an equipment
- Line Sizing
- Illustrate how to use the Rating and Design Line Sizing section
- PSV Datasheets
- Illustrate the workflow to create a PSV Datasheet

Column Models in Aspen HYSYS

Column Operations in Aspen HYSYS

- Identify the information and workflow required to build a Column operation in Aspen HYSYS
- Summarize the method to modify stage efficiencies and the different efficiency types available in Aspen HYSYS
- Locate all the available forms to read column results, both for product streams and for the column internal profiles
- Troubleshoot Columns
- Summarize the different convergence algorithms available for Columns and the workflow to control it
- Identify troubleshooting parameters and tips to allow columns to converge
- Modeling External Unit Operations for Columns
- Recognize the different methods to model a column condenser/reboiler without using the default operations
- Export stage internal data outside of the column environment and identify which streams are appropriate to model an external condenser/reboiler

Column Internals in Aspen HYSYS

- Identify the workflow required to add tray/packing information to an Aspen HYSYS column
- Summarize the specifications for internal trays and packing for each column section
- Visualize internal results, both for overall sections and tray by tray
- Identify hydraulic plots and identify common errors/warnings
- Identify what results can be sent back to the column specs and the workflow to perform this

Steady State Process Simulation Basics By Using UniSim

Training Mode Online Course **Duration** 14 Hours **Fee** 330 USD

Objectives

- Learn to build, navigate and optimize process simulations using UniSim
- Learn the efficient use of different UniSim functions to build steady state process simulations

Who Will Benefit

- New engineering graduates/technologists who will be using UniSim in their daily work
- Process engineers doing process design and optimization projects and studies
- Plant engineers checking plant performance under different operating conditions
- R&D engineers and researchers using UniSim for process synthesis

Course Detail

Starting with UniSim

- Creating a new simulation
- Simulation basis manager
- Adding components to the simulation
- Selecting a fluids package
- Enter simulation environment
- Adding material streams
- Case study

Equations Of State

- Equations of state – mathematical formulations
- Determine the specific volume of a pure component or a mixture with UniSim
- Compare the results obtained with different EOS preview the result using workbook
- Analyze the property using case studies

Pump Operation In UniSim To Model The Pumping Process

- Connect streams to unit operations
- Determine the pump efficiency and outlet temperature
- Adding unit operations
- Connecting unit operation with streams
- Case study & further study

Compressor Operation In UniSim To Model The Compressing Process

- Define a new component using hypothetical
- Determine the compressor efficiency and outlet temperature
- Case study & further study

Expander Operation In UniSim To Model The Expansion Process

- Determine the expansion efficiency and outlet temperature
- Case study & further study

Heat Exchanger Operation In UniSim To Model The Heat Transfer Process

- Problem analysis
- Building the simulation
- Case study & further study

Flash Separator Operation In UniSim To Model The Flash Separation Process

- Problem analysis
- Building the simulation
- Adding a feed stream
- Adding a compressor
- Adding a cooler
- Adding a flash separator
- Case study & further study

Partial Oxidation Reaction Of Methane To Produce Hydrogen

- Develop a model that represents partial oxidation of methane to produce hydrogen
- Simulate conversion reactor and reactions
- Add the reactions and reaction sets
- Attach reaction sets to the fluid package
- Making sequential reactions
- Case study

Develop A Model That Represents The Water Gas Shift Reaction

- Simulate equilibrium reactor and reactions in UniSim
- Re-add the reactions and reaction sets
- Attach reaction sets to the fluid package
- Print stream and workbook datasheets
- Problem analysis & a case study

Production of propylene glycol

- Simulate continuously-stirred-tank reactor and reactions in UniSim
- Set new session preferences
- Creating a new unit set
- Providing binary coefficients
- Defining the reaction
- Installing the mixer
- Installing the reactor
- Case study

Absorber Operation In UniSim To Model The Absorption Process

- Problem analysis
- Running the simulation
- Changing trays to packing
- Getting the design parameters
- Case study & further study

Recovery Of (NGL) From Natural Gas

- Add columns using the input experts
- Add extra specifications to columns
- De-Methanizer operation
- De-Ethanizer operation
- De-Propanizer operation
- Adding a valve
- Case study

PIPESIM Modeling and Simulation

Training Mode	Online Course	**Duration**	14 Hours	**Fee**	440 USD

Objectives

- Learn to build steady-state, multiphase flow simulation for oil and gas production systems to analyze well performance, model pipelines and facilities, and perform nodal analysis using PIPESIM software.
- Participant will get an understanding of how PIPESIM software is used to design and optimize total production systems from the reservoir to the final processing delivery point.

Who Will Benefit

- Students
- Fresh Graduates
- Professionals

Course Detail

Module 1: PIPESIM Introduction

- Single Phase flow Calculation
- Liquid Line Calculation By Hand
- Water Pipe Line Model With PIPESIM
- Analyze Multiple Scenarios With Sensitivities
- Model A Single Phase Gas Pipeline
- Calculate Gas Pipeline Flow Capacity
- Model A Multiphase Pipeline

Module 2: Oil Well Performance

- Nodal Analysis
- Pressure / Temperature Profile
- Black Oil Calibration
- Inflow Performance Matching
- Well Performance Analysis
- Artificial Lift
- Gas Lift Performance
- ESP Performance
- Model Multiple Completions
- Downhole Chokes

Module 3: Gas Well Performance

- Compositional Fluid Model
- Gas Well Deliverability
- Erosion Prediction
- Tube Sizing
- Choke Modeling
- Predict Future Production Rate
- Liquid Loading
- Critical Gas Rate To Prevent Well Loading

Module 4: Horizontal Well Design

- Inflow Performance For Horizontal Completion
- Horizontal Well Performance

Module 5: Subsea Tieback Design

- Flow Assurance Consideration
- Size The Subsea Tieback And Riser
- Hydrates Mitigation Strategies In PIPESIM
- Select Tieback Insulation Thickness
- Determine The Methanol Requirement
- Sever Riser Slugging
- Slug Catcher Sizing

Module 6: Looped Gas Gathering Network

- Model A Gathering Network
- Boundary Conditions
- Screen The Network For Erosion Issues

Module 7: Network Model On The GIS Map

- Building A Network Model On A Map

Advanced Process Simulation & Modeling

Training Mode Online Course **Duration** 45 Hours **Fee** 1100 USD

Objectives

- Learn to build, navigate and optimize process simulations.
- Learn how to use and apply advanced modeling techniques.
- Develop the skills and techniques required for creating and running steady state & dynamic simulations.
- Participants who complete this course should be able to use process simulations to solve problems in the industry.

Who Will Benefit

- New engineering graduates / technologists.
- Process engineers who need advanced skills for more complex modeling tasks.
- R&D engineers and researchers using simulator for process synthesis, upgrade or modifications.
- Process engineers doing process design and optimization projects and studies.
- Plant engineers checking plant performance under different operating conditions.
- Non-engineers with no or limited previous experience in process simulation.

Course Detail

- Basics of process flow sheets
- Introduction to process simulators
- Fundamentals of process modeling using Aspen Hysys
- Advanced simulation techniques using Aspen Hysys
- Process optimization using Aspen Hysys
- Dynamic modeling using Aspen Hysys
- Fundamentals of Flare system
- Modeling using Aspen Flare
- Fundamentals of modeling in HTFS / HTRI
- Fundamentals of modeling in PIPESYS / Aspen Hydraulics

Process Simulation For Operation Engineers

Training Mode Online Course **Duration** 30 Hours **Fee** 660 USD

Objectives

- Learn to build, navigate and optimize process simulations
- Learn the efficient use of different software functions to build industrial processes simulation

Who Will Benefit

- New engineering graduates/technologists
- Operation engineers who want to work as process engineer
- Plant or Operation engineers checking plant performance under different operating conditions
- R&D engineers and researchers using process simulators for process synthesis

Course Outline

Module 01

Introduction to process simulation by using Aspen Hysys

- Simulation Of Pump
- Simulation Of Compressor
- Simulation Of Expander
- Simulation Of Separator
- Simulation Of Absorber
- Simulation Of Shell & Tube
- Simulation Of LNG Exchanger
- Simulation Of Plate and Frame
- Simulation Of Air Cooler
- Simulation Of Distillation Column
- Oil Characterization
- Logical Operators

Module 02

Introduction to process simulation by using Aspen Plus

- Simulation Of Pump
- Simulation Of Compressor
- Simulation Of Separator
- Simulation Of Shell & Tube
- Simulation Of Reactors
- Simulation Of Distillation Column
- Process Manipulators

Module 03

- Heat Exchanger Design By Using EDR
- Heat Exchanger Rating By Using HTRI
- Distillation column Sizing By Using Aspen Hysys
- Separator Sizing By Using Aspen Hysys
- PSV Sizing By Using Aspen Hysys
- Pipe sizing & Hydraulics By Korf Hydraulics

Module 04

- Flare network Modeling By Using Flare Analyzer

Module 05

- Optimization By Using Aspen Hysys
- Case Study By Using Aspen Hysys
- Sensitivity Analysis By Using Aspen Plus

Process Design Engineering

Training Mode Online Course **Duration** 30 Hours **Fee** 660 USD

Objectives

- Understand the fundamentals of process design engineering.
- Learn the methodologies, techniques, and standards used in process design.
- Develop the ability to analyze, evaluate, and optimize industrial processes.
- Acquire practical skills to design safe, efficient, and environmentally friendly processes.
- Gain knowledge of relevant software tools used in process design engineering.

Who Will Benefit

- New engineering graduates / technologists who want to pursue career as a process engineer
- Process design engineers seeking to enhance their skills and stay updated with industry advancements.
- Engineers involved in process development, plant operation, or process improvement.
- Process technologists responsible for implementing and operating industrial processes.
- Plant managers and operators overseeing industrial plants.
- Professionals in industries that interact with process design engineers, such as oil and gas, petrochemicals, fertilizer, pharmaceuticals, food processing, and renewable energy.

Course Detail

Process Design Engineering Codes & Standards

- Introduction
- Overview of codes & standards
- Different phases of project
- Elements of engineering
- Roles of process engineer
- Responsibilities of process engineer
- Capabilities of process design engineer
- Design deliverable

Overview Of Upstream Oil & Gas Industry

- Introduction
- Reservoir, wells and offshore structures
- Production techniques
- Overall oil & gas facility - upstream
- Well head/Christmas tree
- Well head platform and process platform

Fluid Phase Behavior

- Composition of well fluid
- Determination of well fluid composition
- Fluid phase behavior
- Equations of state
- Development of phase diagram by the help of software
- Calculate fluid propertise by the help of software
- Hydrate formation analysis by the help of software

Line Sizing & Hydraulic Calculations

- Terms & definitions
- Line sizing & hydraulic standard
- Sizing criteria
- Sizing methodology & calculations
- Permissible pipe sizes in industry
- Line sizing by the help of software

Pump Hydraulics Calculations

- Introduction
- Classification of pumps
- Selection of pumps
- Steps involved in the pumping system design
- Steps involved in the pump hydraulic calculations
- Pump characteristic curves
- Simulate pump by using characteristic curve

Process Simulation & Modeling

- Introduction
- Steady state simulation
- Dynamic simulation
- Selection of thermodynamic property methods
- Software inputs to generate Heat &Material Balance
- Aspen Hysys or Unisim – software Practicle Application
- Sizing of different unit operations

Development Of Process Design & Engineering Drawings

- Introduction
- Block flow diagram BFD
- Process flow diagram PFD
- Piping & instrumentation diagram P&ID
- Symbols & legends
- Process control scheme
- Line numbering philosophy
- Instrument designation
- Case study

Designing & Sizing Of Separator / Knock Out Drum

- Introduction
- Types of separators
- Typical separators configuration
- Internals operating zones in separator
- Classification of separators
- Residence time for separation
- Separator sizing methodology & calculations
- Sizing of separator by the help of software

Designing & Sizing Of Pressure Relief Valve

- Introduction
- Function of relief valve
- Types of relief valves & selection criteria
- Terms and definition
- Overpressure scenarios
- Thermal or hydraulic expansion scenario
- Gas blow by & tube rupture scenario
- Utility failure scenario
- Control valve failure scenario
- Relief valve sizing requirements
- Sizing methodology
- Calculation procedure
- Codes & standards
- Sizing of pressure safety valve by the help of software

Advanced Process Design Engineering

Training Mode	Online Course	**Duration**	30 Hours	**Fee**	660 USD

Objectives

- This course will help candidates to perform designing / sizing of various equipment according to industrial requirement and standards along with calculations.
- This course will also develop the practical understanding to apply various simulations & modeling tools like Aspen Hysys, EDR, HTRI, korf, Aspen Hydraulics, Flare Analyzer, KG Tower.

Who Will Benefit

- New engineering graduates / technologists who want to pursue career as a process engineer
- Process design engineers seeking to enhance their skills and stay updated with industry advancements.
- Engineers involved in process development, plant operation, or process improvement.
- Process technologists responsible for implementing and operating industrial processes.
- Plant managers and operators overseeing industrial plants.
- Professionals in industries that interact with process design engineers, such as oil and gas, petrochemicals, fertilizer, pharmaceuticals, food processing, and renewable energy.

Course Detail

Designing & Sizing Of Distillation Column

- Concept building
- Design criteria & standards
- Sizing methodology
- Calculation procedure
- Software based modeling (Aspen Hysys / KG Tower)

Designing & Sizing Of Flare System

- Concept building
- Design criteria & standards
- Sizing methodology
- Software based modeling (Flare Analyzer)

Designing & Sizing Of Heat Exchanger

- Concept building
- Design criteria & standards
- Sizing methodology
- Calculation procedure
- Software based modeling (Aspen Hysys / Aspen EDR / HTRI)

Designing & Sizing Of Process Piping

- Concept building
- Design criteria & standards
- Software based line sizing & hydraulics (Aspen Hydraulics / Korf Hydraulics)

Compressors

- Concept building
- Classifications
- Selection criteria & standards
- Performance Evaluation
- Dynamic surge analysis (Aspen Hysys)

Cooling Towers

- Concept building
- Classifications
- Selection criteria & standards
- Design criteria
- Calculations

Control Valves

- Concept building
- Classifications
- Selection criteria & standards
- Control valve sizing calculation

Cause & Effect Analysis

- C&E Fundamentals
- Case studies

HAZOP

- HAZOP Fundamentals
- Case studies

Certified Process Design Professional

Training Mode	Online Course	**Duration**	45 Hours	**Fee**	1100 USD

Objectives

- Understand the fundamentals of process design engineering.
- Learn the methodologies, techniques, and standards used in the process design industry.
- Develop the ability to analyze, evaluate, and optimize industrial processes.
- Acquire practical skills to design safe, efficient, and environmentally friendly processes.
- Gain knowledge of relevant software tools used in the process industry.

Who will benefit

- New engineering graduates/technologists who want to pursue a career in the process industry.
- Process design engineers seeking to enhance their skills and stay updated with industry advancements.
- Engineers involved in process development, plant operation, or process improvement.
- Process technologists are responsible for implementing and operating industrial processes.
- Plant managers and operators overseeing industrial plants.
- Professionals in industries that interact with process design engineers, such as oil and gas, petrochemicals, fertilizer, pharmaceuticals, food processing, renewable energy, etc.

Course Outline

Process Design Engineering Codes & Standards

- Introduction to process engineering
- Different phases of a project
- Roles of process engineer in different phases of a project
- Responsibilities of process engineer
- Capabilities of process design engineer
- Design deliverable

Line Sizing / Pipe Sizing

- Basic terms & definitions
- Line sizing & hydraulic standards
- Sizing criteria for liquid, gas & multiphase fluids
- Sizing methodology for liquid, gas & multiphase fluids
- Hydraulic calculations by using MS Excel
- Permissible pipe sizes in the industry
- Pipe sizing/line sizing with the help of hydraulic software (Aspen Hysys / Unisim Design / Aspen Plus /KORF Hydraulics)

Pumping System Design

- Basic terms & definitions
- Types of pumps
- Selection criteria of pumps
- Pumping system design standards
- Pumping system design methodology
- Pump hydraulic calculations by using MS Excel
- Pump characteristic curves
- Modeling a pump by using a characteristic curve (Aspen Hysys / Unisim Design / Aspen Plus)

Process Simulation

- Introduction to process simulation
- Understand the difference between steady-state simulation & dynamic simulation
- Selection of thermodynamic model/property package
- Software interface overview
- (Heat & Material Balance) H&MBs with the help of simulation software (Aspen Hysys / Unisim Design / Aspen Plus)
- Modeling of different industrial processes (Oil & Gas Focus)

PDF And P&ID's Development

- Introduction to process engineering drawings
- Development of BFD (Block Flow Diagram)
- Development of PFD (Process Flow Diagram)
- Development of P&ID's (Piping & Instrumentation Diagram)
- Usage of standard symbols & legends
- Process control philosophy
- Line numbering philosophy
- Instrument designation
- Development of covering sheet

Designing & Sizing Of Separators

- Types of separation
- Typical separators design configuration
- Internal operating zones in a separator
- Classification of separators
- Residence time for separation
- Separator sizing standard & methodology
- Separator design calculations by using MS Excel
- Sizing of the separator with the help of software (Aspen Hysys / Unisim Design)

Pressure Relief Devices

- Basic terms & definitions
- Function of a relief valve
- Types of relief valves & selection criteria
- Thermal or hydraulic expansion scenario
- Gas blow-by & tube rupture scenario
- Utility failure scenario
- Control valve failure scenario
- Relief Valve Sizing
- Standards & codes
- Relief valve installation standard
- Sizing methodology
- Sizing calculations by using MS Excel
- Sizing of pressure safety valve with the help of software (Aspen Hysys)
- Upstream & downstream pipe sizing criteria
- Overpressure scenario study with the help of software (Flare Analyzer)

Distillation Column / Tower Design

- Basic terms & definitions
- Design criteria and standards
- Design criteria & standards
- Sizing methodology
- Calculation procedure step by step
- Sizing of distillation column/tower with the help of software (Aspen Hysys / Unisim Design / Aspen Plus / KG Tower)

Designing Of Heat Exchanger

- Basic terms & definition
- Different types of heat exchangers
- Design criteria & standards
- Sizing methodology
- Calculation procedure step by step
- Heat exchanger design with the help of software (Aspen EDR / HTRI)

Compressors

- Introduction to compressed air system
- Types of compressors
- Performance evaluation of compressor
- Modeling of a compressor with the help of a characteristic curve (Aspen Hysys)
- Dynamic surge analysis of compressor (Aspen Hysys)

Cooling Towers

- Basic terms & definitions
- Types of cooling towers
- Cooling tower internals
- Selection criteria & standards
- Cooling tower design & sizing calculation

Control Valves

- Types of valves
- Selection criteria
- Application of different valves
- Design & sizing standard
- Control valve sizing calculation by using MS Excel

Process Safety Studies

What is cause & effect analysis?

- Basic terms
- C&E fundamentals
- Case study

What is HAZOP?

- Basic terms
- HAZOP fundamentals
- Case study

Process Engineering For Operation Engineers

Training Mode	Online Course	**Duration**	30 Hours	**Fee**	660 USD

Objectives

- This is an interactive course, involving problem-based learning techniques to convey key concepts.
- Understanding of process engineer roles and capabilities
- It reveals the mind-set of process engineering, examining the core concepts and key features of the discipline.
- The course will help you to take on a professional role that involves aspects of process engineering and enable you to communicate and collaborate more effectively with process engineers.

Who Will Benefit

- Operation engineers who want to work in process engineering department or technical services department.
- Operation engineers involves in project related activities.
- Plant engineers checking plant performance under different operating conditions.

Course Detail

Process Engineering & Codes

- Introduction
- Overview of codes & standards
- Different phases of project
- Elements of engineering
- Roles of process engineer
- Responsibilities of process engineer
- Capabilities of process design engineer

Pipe Sizing & Hydraulics

- Terms & definitions
- Sizing of pipes & line
- Sizing criteria
- Sizing methodology
- Calculations
- Permissible pipe sizes in industry
- Pipe sizing software application

Pump & Hydraulics

- Introduction
- Classification of pumps
- Selection of pumps
- Pump material of selection
- Steps involved in the pump system design
- Steps involved in the pump hydraulic calculations
- Pump characteristic curves
- Calculations

Fluid Phase Behavior

- Composition of well fluid
- Determination of well fluid composition
- Well fluid phase behavior
- Terms & Definitions
- Equations of state
- Software application

Process Simulation & Modeling

- Introduction & purpose
- Steady state simulation introduction
- Dynamic simulation introduction
- Software inputs for simulation
- Aspen Hysys – software and its usage steady state
- Typical operation in simulation schemes

Development Of Process Design & Engineering Drawings

- Introduction
- Block flow diagram
- Process flow diagram
- Piping & instrumentation diagram
- Symbols & legends
- Case study

Designing & Sizing Of Separator / Knock Out Drum

- Introduction
- Types of separators
- Typical separator
- Internals operating zones in separator
- Classification of separator
- Residence time for separation separator
- Separator sizing methodology
- Calculation
- Sizing in a software

Designing & Sizing Of Pressure Relief Valve

- Introduction
- Function of relief valve
- Types of relief valves
- Terms and definition
- Overpressure scenarios
- Thermal or hydraulic expansion
- Gas blow by & tube rupture
- Utility failure
- Control valve failure
- Relief valve sizing
- Sizing methodology
- Calculation procedure
- Codes & standards
- Sizing in a software

Designing & Sizing Of Heat Exchanger

- Concept building
- Design criteria & standards
- Sizing methodology
- Calculation procedure
- Software based modeling (Aspen EDR)

Compressors

- Concept building
- Classifications
- Selection criteria & standards
- Design criteria

Cooling Towers

- Concept building
- Classifications
- Selection criteria & standards
- Design criteria

Control Valves

- Concept building
- Classifications
- Selection criteria & standards

HAZOP

- HAZOP fundamentals
- Case studies

PFD And P&ID Development By Using AutoCAD

Training Mode Online Course **Duration** 14 Hours **Fee** 330 USD

Objectives

- To provide basic knowledge & exposures in related industry, especially in the oil, gas and petrochemical sector.
- Learn in-depth information and facts needs to be interpreted, when reviewing design drawings and no more miss-look on hidden data.
- Explore more on how design drawings are being prepared and develop.
- Achieve acceptable drafting standards of knowledge and competence.

Who Will Benefit

- New graduates who wish a dynamic career
- Project management team and approval managers
- All design group – design & drafting personnel, piping engineers, mechanical engineers, process engineers
- Operating supervisor & technician, maintenance supervisor & technician
- This program also support non-technical personnel assigned to positions in petroleum refineries, corporate offices, supplier and other interrelated companies.
- Other professionals who desire a better understanding of subject.

Course Detail

Basic Concepts

- Basic terms
- Abbreviation
- Purpose of pfd
- Purpose of P&ID
- Information provided on PFD
- Information provided on P&ID
- Process related information
- Piping related information
- Instrumentation related information
- Control related information
- Special information

Design codes

- Engineering standard practices
- Client's specifications

Symbols And Numbering Systems

- Symbols
- Piping
- Valve
- Control valve
- Actuator
- Instruments
- Notation
- Numbering
- Tag system
- Equipment
- Instrumentation and control
- Combining process and hardware

Understanding About PFDs

- Why pfd is necessary?
- PFD information in P&ID
- Heat and mass balance
- Operating conditions
- Physical property

Understanding About P&IDs

- Why P&ID is necessary?
- Equipment and system
- P&ID and Datasheets

PFD And P&ID Development

- Development of a simple basic PFD
- Development of a simple basic P&ID
- Valves – type and application
- Development of control loops
- Need and location of measuring instruments
- Piping and insulation information
- Incorporation of misc. Information in P&ID
- P&ID evolution and changes in plant life

Safety Systems

- Safety system in P&ID
- Pressure relief systems
- Safety features in industry
- Overview

P&ID Life Cycle And Case Studies

- P&ID life cycle
- Why P&IDs keep changing
- Exercise: reading P&IDs
- Case studies
- Future studies

Primavera P6

Training Mode	Online Course	**Duration**	20 Hours	**Fee**	330 USD

Objectives

- Course provides hands-on training for primavera enterprise 6.0 to improve the competency of project management practitioners and for those who want to embark on the world of project management, whether to assess the benefits of the project-driven organization or to develop new skills, and is considering a foundation milestone in stepping towards advancement.
- Learn fundamentals of project management.
- Learn how today available tool can be uses to effectively manage projects data and provide visibility for important project performance data.
- Learn how to use project management techniques to plan, organize, control, document and close out their projects successfully and with minimum risk.

Who Will Benefit

- New graduates who wish a dynamic career in project management.
- Personnel whose responsibilities include managing as well as supporting projects.
- Technical /engineering people moving into a project management/team leadership role.
- Any individuals whose responsibilities include supporting projects, such as personnel in the back office and in an administrative support areas; marketers; and sales.

Course Detail

Creating A Project Plan

- Understanding planning and scheduling software enterprise project management
- Understanding your project planning without resources creating projects
- Defining the calendars
- Defining the project breakdown structures adding activities
- Adding the logic links constraints
- Scheduling the project
- Formatting the display – layouts and filters printing and reports
- Issuing the plan
- Setting the baseline tracking progress
- Creating and using resources creating and using roles
- The relationship between resources and roles activity

- Budgets
- Status projects with resources
- Tools and techniques for scheduling
- The balance between the number of activities and resources

Creating A New Project

- File types
- Enterprise project structure (EPS) creating a blank project
- Copy an existing project
- Setting up a new project and EPS nodes project dates
- Saving additional project and EPS information - notebook topics

Defining Calendar

- Accessing global and project calendars
- Assigning the project default project calendar creating a new calendar
- Copying calendars, renaming a calendar deleting , a calendar resource calendars
- Editing calendar working days of an existing calendar adjusting working hours
- Editing calendar weekly hours
- Editing selected days working hours editing detailed work hours/day
- Inherit holidays and exceptions from a global calendar calculation of summary durations

Creating WBS

- Opening and navigating the WBS workspace
- Creating and deleting a WBS node
- WBS node separator
- Work breakdown structure lower pane details WBS categories

Adding Activities & Organizing Under The WBS

- New activity defaults duration type
- Calendar
- Auto-numbering defaults adding new activities
- Copying activities in primavera version copying activities from other programs elapsed durations
- Finding the bars in the GANTT chart
- Activity information – bottom layout
- Assigning calendars to activities
- Assigning a calendar using general tab of the bottom layout form
- Assigning a calendar using a column
- Undo
- Assigning activities to a WBS node reordering or sorting activities
- Summarizing activities using WBS

Printing

- Print preview page setup
- Page tab
- Margins tab
- Header and footer tabs options tab
- Print form
- Print setup form

Formatting The Display

- Formatting in the project workspace
- Formatting columns
- Selecting the columns to be displayed
- Setting the order of the columns from left to right on the screen adjusting the width of columns
- Editing the column description and alignment
- Formatting the bars
- Formatting activity bars bar style tab
- Bar settings tab bar labels tab
- Bar chart options form
- Format fonts and font colors format colors
- Format timescale
- Moving and rescaling the timescale format
- Timescale command
- Gantt chart curtains
- Adding Relationships
- Understanding relationships understanding lags and leads
- Displaying the relationships on the bar chart adding and removing relationships
- Graphically adding a relationship
- Adding and deleting relationships with the activity details form chain linking
- Using the command toolbar buttons to assign relationships dissolving activities
- Circular relationships scheduling the project
- Critical activities definition

Activity Network View

- Viewing a project using the activity network view
- Adding, deleting and dissolving activities in the activity network view adding, editing and deleting relationships
- Graphically adding a relationship
- Using the activity details form
- Formatting the activity boxes
- Reorganizing the activity network

Constraints

- Assigning constraints
- Number of constraints per activity
- Setting a primary constraint using the activity details form
- Setting a secondary constraint using the activity details form setting constraints using columns
- Typing in a start date
- Project must finish by date activity notebook
- Creating notebook topics adding notes

Filters

- Understanding filters applying a filter
- Filters form
- Applying a single filter
- Applying a combination filter creating a new filter
- Modifying a filter
- One parameter filter two parameter filter

Group, Sorts & Layouts

- Group and sort activities show grand totals
- Show summaries only group by options
- Sorting
- Reorganize automatically
- Group and sort projects at enterprise level understanding layouts
- Applying an existing layout creating a new layout
- Editing a layout lay-out types
- Changing layout types in panes layout types

Gantt chart

- Activity details activity table & activity network trace logic
- Copying a layout to and from another database

Tracking Progress

- Setting the baseline, saving a baseline & deleting a baseline
- Restoring a baseline to the database as an active project setting the baseline project
- Update baselines & displaying the baseline data
- Practical methods of recording progress understanding the concepts
- Summary bars progress calculation understanding the current data date updating the schedule
- Updating activities using the status tab of the details form updating activities using columns

Progress spotlight

- Highlighting activities for updating by dragging the data date

Microsoft Excel for Engineers

Training Mode	Online Course	**Duration**	14 Hours	**Fee**	330 USD

Objective

- Learn the efficient use of different MS EXCEL features to carry out engineering tasks.

Who Will Benefit

- Engineers / Technologists
- Students
- Researchers

Course Detail

Introduction

- Creating A Worksheet
- Copy and Paste Option
- Using Auto Fill to Automatically Enter The Data
- Selection Techniques for Wide Data Range
- Inserting Cells

Charts

- Creating an XY Scatter Graph
- Formatting an XY Scatter Graph
- XY Chart with dual Y-Axes
- Add Error Bars In Plot
- Create a Combination Chart

Functions

- Computing Sum, Average, Count, Max and Min
- Computing Weighted Average
- Trigonometric Functions
- Exponential Functions
- Using The CONVERT Function to Convert Units

Conditional Functions

- Logical Expressions
- Boolean Functions
- Practical Example
- IF Function
- Creating a Quadratic Equation Solver
- Table VLOOKUP Function

Regression Analysis

- Trend-line, Slope and Intercept
- Interpolation and Forecast
- The LINEST Function
- Multilinear Regression
- A Polynomial Fit
- Residuals Plot
- Slope and Tangent
- Analysis Tool

Iterative Solutions

- Goal Seek In Excel
- Solver To Find a Root
- Finding Multiple Roots
- Optimization Using The Solver
- A Minimization Problem
- Non-Linear Regression

Matrix Operation

- Adding Two Matrices
- Multiplying a Matrix by a Scalar
- Multiplying Two Matrices
- Transposing a Matrix
- Inverting a Matrix
- Solving System of Linear Equations

VBA User-Defined Functions

- Visual Basic Editor (VBE)
- IF Structure
- Select Case Structure
- For Next Structure
- Excel Object Model
- For Each Next Structure
- Do Loop Structure
- Declaring Variables and Data Types
- An Array Function

VBA Subroutines (Macros)

- Recording a Macro
- Coding a Macro: Finding Roots by Bisection Method
- Adding a Control
- User Forms

Numerical Integration

- Rectangle Rule
- Trapezoid Rule
- Simpson's Rule
- Creating a UDF for the Simpson's Rule

Differential Equations

- Euler's Method
- Modified Euler's Method
- Runge-Kutta Method
- Solving a Second Order Differential Equation

Chemical Engineering For Non–Engineers

Training Mode	Online Course	**Duration**	30 Hours	**Fee**	660 USD

Objectives

This course offers an introduction to some of the main subject areas involved in chemical engineering disciplines and will broaden the technology base of participants with a view to promoting improved communication with chemical engineers.

Who Will Benefit

This intense course is aimed at professionals working in the chemical and process industries, especially at government agencies who work in close collaboration with chemical engineers, and at companies who employ chemical and process engineers.

- New graduates
- Students
- Plant Technician / Operators / Supervisors

Course Detail

Module 1: What is chemical engineering?
Module 2: Material and energy balances
Module 3: Fluid flow
Module 4: Process heat transfer
Module 5: Simulation & modeling software
Module 6: Basic mass transfer and mass transfer operations
Module 7: Process safety and HAZOP
Module 8: PFD And P&ID study

Certified Process Simulation Expert (CPSE)

Training Mode	Online Course	**Duration**	40 Hours	**Fee**	1100 USD

Objectives

- Develop the skills to build, navigate, and optimize process simulations using Aspen HYSYS.
- Gain proficiency in efficient HYSYS functions to model a wide range of process systems.
- Learn and apply industry best practices for troubleshooting, revamping, and optimizing process units.
- Master advanced and complex modeling techniques, including dynamic simulation, to solve real-world engineering challenges.
- Earn an Internationally Recognized Certificate, demonstrating your expertise to employers worldwide.

Who Will Benefit

- New engineering graduates/technologists who want to pursue a career in the process industry.
- Process design engineers seeking to enhance their skills and stay updated with industry advancements.
- Engineers involved in process development, plant operation, or process improvement.
- Process technologists are responsible for implementing and operating industrial processes.
- Plant managers and operators overseeing industrial plants.
- Professionals in industries that interact with process design engineers, such as oil and gas, petrochemicals, fertilizer, pharmaceuticals, food processing, renewable energy, etc.

Course Detail

Module 1 – Process Simulation Fundamentals

- Introduction To Process Simulation
- Properties Environment Interface And Navigation
- Selection Of Fluid Packages
- Component Selection And Hypothetical Component Generation
- Petroleum Assay Management And Crude Oil Characterization
- Workshop: Build A Basic Flowsheet (Propane Refrigeration Loop)

Module 2 – Simulation Environment And Logical Operations

- Unit Sets And Customization
- Stream Manipulation And Flowsheet Connections
- Logical Operations (Adjust, Set, Balance, Recycle)
- Sensitivity Analysis & Optimization Basics
- Workshop: Gas Dehydration Model (Hydrate Formation + Inhibitors + Dew Point)

Module 3 – Core Unit Operations

- Separation: 2-Phase Separator, 3-Phase Separator, Splitter
- Heat Transfer: Heaters, Coolers, Air Cooler, Shell And Tube Exchanger, Plate And Frame Exchanger, LNG Exchanger, Aspen Exchanger Design And Rating (EDR) Link
- Column Operations: Column Templates, Specs, DOF Analysis, Shortcut Vs Rigorous Models, Side Operations.
- Workshop: LNG And LPG Recovery Process simulations
- Workshop: Atmospheric Crude Oil Distillation Column

Module 4 – Rotating Equipment And Stream Analysis

- Pump, Compressor, Expander
- Pump And Compressor curves
- Stream Analysis (Phase Envelope, Properties)
- Equipment Design Basics (Pipe Sizing, Vessel Sizing, Column Sizing)
- Workshop: Two-Stage Compression With Recycle Option

Module 5 – Advanced Unit Operations And Troubleshooting

- Case Study Types And Setup
- Workbook Customization, Excel Integration
- Report Manager, Data Tables, Correlation Manager
- Convergence Issues: Tips, Consistency Error
- Troubleshooting Best Practices (Step-By-Step Method)
- Workshop: Troubleshoot Multiple Aspen Hysys Models

Module 6 – Midstream Applications
Acid Gas Treatment:

- Fluid Packages, Acid Gas Columns, Convergence Issues
- Case Studies & Makeup Block
- Column Analysis Workflow For Detailed Sizing
- Workshop: Optimization Of Acid Gas Sweetening Process
- Sulfur Recovery (SULSIM):
- Thermal + Catalytic Stages, Tail Gas Treatment
- Reaction Furnace Models, SRU Flowsheet, Air Demand Analyzer
- Sour Water Stripping:
- Fluid Package And Simulation Setup

Module 7 – Upstream Applications

- Pipe Segment (Correlations, Pressure Drop, Heat Transfer)
- Flow Assurance (Slugging, Hydrate Risk, Erosion)
- Aspen Hydraulics Vs Pipe Segments: Difference And Application
- Flowsheet Constraints In Hydraulics Models

Module 8 – Safety Analysis Environment

- Relief Valve Sizing
- Scenarios Study: Blocked Outlet, Fire, Control Failures, Cooling Water Failure
- Fire Case Methodology
- Multiple Relief Devices And Flare Modeling
- Line Sizing For Relief Systems

Module 9 – Advanced Column Modeling

- Modifying Stage Efficiencies (Types & Workflows)
- Reading Detailed Column Profiles (Temperature, Composition)
- Troubleshooting Columns (Convergence Algorithms And Tips)
- Modeling External Reboilers And Condensers
- Column internals: Trays, Packing, Hydraulics Plots
- Common Errors And Best Practices

Module 10 – Dynamic Simulation Fundamentals

- Introduction To Dynamic Simulation
- Transition From Steady State To Dynamic Simulation
- Compressor Dynamic Surge Analysis
- Dynamic Depressurization
- Blowdown Analysis

Module 11 – Certification Preparation & Capstone Project

- Real Time Industrial Project
- Review Of Aspen Hysys User & Expert Exam Requirements
- Mock Exams (Case Study + Troubleshooting Challenges)
- Final Q&A + Certification Readiness Check

Training Methodology

The training will utilize a variety of teaching methods, including lectures, interactive discussions, and hands-on practical exercises, ensuring a comprehensive learning experience.

Participants will engage in practical exercises to apply their knowledge in real-world scenarios, reinforcing their skills and understanding.

The training will encourage active participation and collaboration, creating an engaging learning environment conducive to knowledge sharing.

During training, our assigned expert will deliver you LIVE lectures (online interactive sessions) and software training via Screen/Desktop Sharing. There is no particular schedule for Online Training, whenever you want, we can start the training, according to your comfort & Time Zone. Normally, training session duration is 01 ~ 02 Hours/Day.

Registration Process

Kindly follow the mentioned below steps to proceed further.

Step #01: Please follow the mentioned below link for registration application submission:

https://omesolglobal.com/registration

Step #02: Please follow the mentioned below link for fee submission:

https://omesolglobal.com/submit-fee

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