Petrogenium. Academy

Process Technology

Using ChatGPT in Process Design, Chemical Engineering & Process Safety

Consultant / Trainer
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This **Petrogenium.** 4-day course introduces engineers to the practical use of ChatGPT in process design, chemical engineering, and process safety. Participants will learn how to apply ChatGPT for calculations, simulations, and documentation in real engineering workflows. The training covers process design fundamentals, control strategies, HAZOP/LOPA facilitation, and safety studies. Hands-on workshops with case studies in hydrogen, ammonia, methanol, and SAF ensure direct industry relevance. By the end, participants will be equipped to integrate ChatGPT effectively while validating results against engineering standards.

Participants

1. Process Engineers involved in process design, simulation, and optimization.

2. Chemical Engineers working on equipment sizing, thermodynamics, and reaction engineering.

3. Process Safety Engineers responsible for HAZOP, LOPA, C&E diagrams, and SIS/SRS development.

4. Control & Automation Engineers working on P&IDs, control narratives, and process automation strategies.

5. Project & Design Engineers in oil & gas, hydrogen, ammonia, methanol, and sustainable fuels projects.

6. Engineering Managers & Consultants seeking productivity gains and standardization with ChatGPT.

Learning Objectives

Participants will learn how to apply **ChatGPT** in process design, chemical engineering, and process safety studies.

They will develop skills **in calculations, equipment sizing, control schemes, and documentation** support.

The course builds competence in **HAZOP, LOPA**, and safety instrumented system development with ChatGPT assistance.

By the end, participants can **integrate ChatGPT** into engineering workflows while ensuring validation against standards.

Programme

DAY 1

Module 1: Introduction to ChatGPT in Process Engineering

1. Role of ChatGPT-powered tools in Chemical Engineering & Process Safety

2. Overview of ChatGPT capabilities, limitations, and reliability checks

3. Integrating ChatGPT with engineering workflows (simulation tools; HYSYS, UNISIM)

4. Importing Process Flow Scheme and P&ID in ChatGPT

Module 2: Process Design Fundamentals with ChatGPT

1. Material & Energy Balances (H&MB generation support)

2. Stream property predictions (enthalpy, phase, compositions)

3. Equipment design calculations:

   • Heat exchangers (UA, LMTD, approach temperatures)

   • Pumps & compressors (pump curves, surge line, NPSH)

   • Distillation columns (McCabe-Thiele, shortcut distillation, tray efficiency)

Workshop: Using ChatGPT to draft a Heat & Material Balance for a Distillation column case study

DAY 2

Module 3: Process Control & Automation

1. Control loop narratives (flow, pressure, temperature, level control)

2. P&ID development support and tag generation

3. Control valve sizing and pump minimum flow protection

4. ChatGPT as Copilot for Dynamic Simulations in UNISIM/HYSYS

Module 4: Specialised Chemical Engineering Applications

1. Reactor kinetics support (CSTR, PFR, catalytic reactors)

2. Thermodynamics (VLE, EOS, property methods)

3. Separation technologies: distillation, membrane, adsorption, and extraction

4. Process intensification concepts

Workshop: Drafting a process control scheme for a Distillation column case study

Why select Petrogenium.?

The above support will be provided by principal

consultants with 30+ years world-class experience

in the technology and hands-on know-how from

operation of refinery units.

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Email: training@petrogenium.com
Website:https://www.petrogenium.com/training/

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