

Petrogenium. Academy

ENERGY AND UTILITY SYSTEMS

Consultant / Trainer : Jan Zander

This **Petrogenium.** Utility and Energy course has the key objective to provide understanding and guidance to staff, with the purpose to improve the reliability, efficiency and effectiveness of utilities generation and distribution at your refinery, petrochemical complex or LNG facility. Over many years the **Petrogenium.** experts gathered deep technical expertise in the operation, optimization and troubleshooting of all Utility complex aspects and its associated equipment. This knowledge and resulting best practices were collected and built the foundation for the course.



Participants :

This **Petrogenium.** course can be tailored for awareness/inexperienced staff, for intermediate and for experienced personnel. Furthermore the course can be customized for a specific refinery, plant or unit. The option for post-course consultancy/help-desk support is also available.

Participants may include: (new) engineers and senior operational staff whereas based on the attendee profile a more theoretical or practical course approach can be followed.

The trainer has the option to incorporate specific supporting activities and exercises into the existing 4-day program.

Training Objectives :

Understanding of all factors related to energy and utilities to improve the reliability, efficiency and effectiveness of utilities generation and distribution of refineries, petrochemical complexes or LNG facilities; problems that are experienced in many manufacturers' sites but are not described in detail in most textbooks will be dealt with, in order to help the participants in trouble shooting several hot utilities systems once they come across these issues.

Programme

Day 1

- Introduction
- Basic water chemistry
- Water sources & surge
- Sedimentation & clarification
- Filtration
- Ion exchange / demin plant

Day 3

- Steam turbines
- Condensers
- Cooling towers performance
- Cooling water treatment
- CT water & chlorination
- Cooling water & legionella



Day 2:

- De-aeration & oxygen scavenging
- Boiler Feedwater pumps & Net Positive Suction Head
- Boilers & combustion basics
- Boiler water treatment
- Condensate treatment
- Steam distribution, control & dynamics

Day 4:

- Water integrity protection
- Process safety in utilities
- Pump curves
- Condensate trapping
- Fuel gas
- Instrument air
- Nitrogen
- Reliability philosophy
- Power dynamics

About the Trainer :

Jan Zander: Principal Consultant Energy Systems & Utilities

Delft University of Technology – Master of Science, Mechanical (Energy) Engineering 1986

- 30+ years with Shell in technology and operations functions in utilities / power plants / energy systems of oil refineries, of a Gas to Liquids plant and in central technical support organisations. Broad background in the operation, economics, and energy optimisation of refineries and petrochemical units.
- In 2019 Jan joined **Petrogenium**. as Principal Consultant Energy Systems & Utilities.
- As part of his work as a Consultant, Jan teaches courses on general utilities either at **Petrogenium**. headquarters or at customer sites.

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.

Because Experience Matters

Contact Petrogenium.:

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