



HAZOP training for Team leaders

Consultant / Trainer:

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Understanding your risks is an essential element of Process Safety Management. You must know your hazards in order to mitigate and manage them. Hazard and Operability Study (HAZOP) is the most widely used tool for risk analysis in the process industry. It is a multidisciplinary team approach in which risks are systematically identified and assessed in a structured way. The **Petrogenium**.

HAZOP Training for Team Leaders will teach you how to prepare, facilitate, conduct and follow-up a high-quality and efficient HAZOP study. The theory is not difficult, but acquiring expertise requires practice. Therefore, there is ample opportunity in the training to exercise in a coached setting.

In addition to the HAZOP method, a short introduction will be given in related risk analysis methods, such as Hazard Identification (HAZID), Layer of Protection Analysis and Safety Integrity Level (SIL) determination.

This training will involve a significant amount of case work. Participants are encouraged to bring their own design materials (P&IDs) that they want to practice HAZOP on. Previous HAZOPS in your company are welcomed as case material. In this way participants can make a “flying start” in implementing HAZOP in your organization.

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:

- HSEQ professionals
- Process/Process Control engineers
- Maintenance & Production managers
- Consultants

Learning Objectives

- Understanding HAZOP Study Methodology
- Participating in, Leading and Organising HAZOP Studies
- Revalidating HAZOP Studies

Programme

Day 1

- Place of HAZOP Studies in Risk Management: When to apply HAZOP
- Introduction to Accidents & Types of Hazard Studies and When Applicable
- HAZOP Study Basics
- Identification of nodes
- Parameter/Guideword Combinations
- Generating Scenarios, Identifying Safeguards and Assessing Residual Risk
- Generating meaningful recommendations
- Case Work

Day 2

- How Low is Low Enough: Risk Ranking and ALARP
- Reporting and Follow-Up & Organizing the HAZOP Study
- Prerequisites, required documentation and knowledge
- Preparation and organization of HAZOP Studies
- Team Composition & Responsibilities
- HAZOP Study Leadership: Competences of Facilitator and Scribe
- Planning and estimating the time for a HAZOP Study
- HAZOP Revalidation
- Use of Software
- Implementation of a HAZOP Process in Your Organization
- Case Work

Day 3

- Risk Reduction Measures & Independent Protection Layers
- Safety Instrumented Systems
- SIL (Safety Integrity Level) Determination
- Alternative Risk Analysis methods: Checklists, HAZID, What-If, Bow-Tie, LOPA, QRA
- Case Work