

Chemical Process Safety & HAZOP Studies

COURSE OVERVIEW

This course provides a rigorous foundation in the principles and practices of process safety management, with a specialized focus on Hazard and Operability (HAZOP) studies. The curriculum covers the lifecycle of process safety, from inherent safety design and hazard identification to quantitative risk analysis and the management of safety systems. A significant component is dedicated to the methodology, leadership, and practical application of HAZOP studies, a cornerstone of process hazard analysis in the chemical industry. Participants will be equipped with the requisite knowledge for prevention of major accidents involving the release of hazardous materials and energy.

WHO SHOULD ATTEND?

This course is essential for chemical engineers, process engineers, and plant operations professionals involved in the design, operation, or management of chemical process facilities, providing them with the critical skills to systematically identify, evaluate, and mitigate major process hazards through methodologies like HAZOP studies and Layer of Protection Analysis.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Differentiate between occupational safety and process safety, and explain the key elements of a Process Safety Management (PSM) system.
- Apply the principles of inherent safety to design and modify chemical processes.
- Identify and analyze process hazards using techniques such as HAZOP, What-If Analysis, and Layer of Protection Analysis (LOPA).
- Lead and contribute effectively to a HAZOP study team, including developing guide words, identifying deviations, and recommending safeguards.
- Calculate key risk metrics and understand the fundamentals of consequence analysis for fires, explosions, and toxic releases.
- Evaluate engineering and administrative safeguards to mitigate identified process risks.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- The core principles of Process Safety Management (PSM) and how it fundamentally differs from occupational safety.
- The methodology to lead and contribute effectively to a Hazard and Operability (HAZOP) study, from selecting guide words to recommending safeguards.
- How to apply inherent safety principles to design and modify safer, more robust chemical processes.
- The fundamentals of quantitative risk assessment, including how to use a Layer of Protection Analysis (LOPA) to determine the adequacy of safeguards.
- The engineering basis for major accident hazards, including fire, explosion, and toxic release scenarios.
- How to interpret and apply the findings of a Process Hazard Analysis (PHA) to improve plant safety and operational procedures.

All our courses are dual-certificate courses. At the end of the training, the delegates will receive two certificates.

1. A GTC end-of-course certificate
2. Continuing Professional Development (CPD) Certificate of completion with earned credits awarded