# HAZOP Study Leadership and Facilitation Techniques Training Course

OGT-1100 · 5 days · 20 CPD hours · English

## OVERVIEW

The HAZOP Study Leadership and Facilitation Techniques Training Course is a specialised professional programme designed to develop the technical knowledge, facilitation skills and leadership capabilities required to conduct effective Hazard and Operability (HAZOP) studies across complex industrial operations. In oil and gas facilities, where process hazards, operational deviations and equipment failures can create significant safety and business risks, a well-structured HAZOP study is essential for identifying hazards, evaluating safeguards and supporting safer process design and operations.

As part of the Process Safety Management for Oil & Gas category, this course focuses on the principles, methodologies and practical techniques required to lead HAZOP sessions efficiently and systematically. It explores the role of a HAZOP leader in guiding multidisciplinary teams through hazard identification, deviation analysis, risk assessment, safeguard evaluation and action development. Participants will learn how to apply guidewords, process parameters, node selection principles and structured questioning techniques to uncover potential hazards and operational problems.

The programme also addresses the practical challenges of HAZOP facilitation, including managing team dynamics, maintaining analytical focus, resolving disagreements, documenting findings and ensuring recommendations are technically meaningful. Through realistic process scenarios, interactive workshops and structured exercises, participants develop the ability to facilitate discussions that balance technical depth, time management and effective decision-making.

Delivered through the professional training approach of the Oil & Gas Training Institute, this course equips professionals with the skills to lead HAZOP studies confidently, improve the quality of hazard identification, strengthen process safety practices and support the implementation of effective risk-reduction measures throughout the process lifecycle.

## OBJECTIVES

By the end of this training course, participants will be able to:

- Explain the principles, purpose, scope and applications of HAZOP studies within process safety management frameworks.
- Identify suitable HAZOP study boundaries, process nodes, design intentions and operating conditions.

- Apply HAZOP guidewords, process parameters and deviation combinations to systematically identify process hazards and operational concerns.
- Lead multidisciplinary HAZOP teams using structured facilitation, questioning and analytical techniques.
- Analyse potential causes, consequences and existing safeguards associated with identified process deviations.
- Evaluate risk levels using appropriate risk assessment methodologies, risk matrices and organisational criteria.
- Assess the adequacy, independence and effectiveness of safeguards and recommend appropriate risk-reduction measures.
- Manage HAZOP workshops effectively by addressing time constraints, conflicting opinions, participation challenges and technical uncertainties.
- Develop clear, consistent and actionable HAZOP documentation, including findings, recommendations, responsibilities and follow-up requirements.
- Evaluate HAZOP study quality and implement practical improvements in study preparation, facilitation, reporting and action management.

## TRAINING METHODOLOGY

The HAZOP Study Leadership and Facilitation Techniques Training Course uses a practical, interactive and technically focused methodology to develop both analytical expertise and workshop leadership capabilities. The training combines structured instruction with exercises that simulate the challenges encountered during real-world HAZOP studies in oil and gas operations.

- **Interactive Presentations and Technical Discussions:** Participants explore HAZOP principles, guidewords, deviations, process parameters, risk assessment methodologies and facilitation responsibilities through instructor-led sessions and technical discussions.

- **HAZOP Workshop Simulations:** Learners participate in simulated HAZOP sessions involving process diagrams, node selection, deviation analysis, cause identification, consequence assessment and safeguard evaluation.

- **Practical Facilitation Exercises:** Participants practise leading discussions, asking effective questions, encouraging technical participation, managing disagreements and keeping HAZOP sessions focused on study objectives.

- **Case Study Analysis:** Realistic process safety scenarios involving piping systems, storage facilities, pumps, compressors, heat exchangers and process control systems are used to examine hazards, operational deviations and safeguard performance.

- **Group-Based Risk Assessment Workshops:** Teams work collaboratively to analyse identified deviations, assess consequences, evaluate existing protections and develop recommendations using structured risk assessment techniques.

- **Scenario-Based Learning:** Participants respond to challenging workshop situations, including incomplete technical information, conflicting opinions, complex deviations, time pressures and unclear recommendations.

- **HAZOP Documentation Exercises:** Learners develop structured HAZOP worksheets, record findings, formulate action items and review the quality and consistency of study documentation.

- **Peer Review and Knowledge Exchange:** Participants share industry experiences, compare facilitation practices, discuss operational challenges and evaluate alternative approaches to improving HAZOP study effectiveness.

## ORGANISATIONAL IMPACT

Organisations operating in oil and gas, petrochemical, refining, gas processing and related process industries can benefit from stronger HAZOP leadership and facilitation capabilities. By developing professionals who can conduct structured and effective HAZOP studies, this training supports safer operations, more informed engineering decisions and improved process risk management.

- **Improved Hazard Identification:** Better facilitated HAZOP studies enable teams to systematically identify process deviations, hazardous conditions, operational weaknesses and potential accident scenarios before they develop into serious incidents.

- **Stronger Risk Management:** Participants gain the capability to evaluate causes, consequences, safeguards and risk levels more consistently, supporting effective risk-reduction decisions.

- **More Effective Safeguard Evaluation:** Organisations can improve the assessment of existing protective measures, including alarms, interlocks, emergency shutdown systems, relief systems and operational controls.

- **Enhanced Process Safety Decision-Making:** Well-led HAZOP workshops encourage multidisciplinary analysis and improve the technical quality of decisions related to process design, operating procedures and safety improvements.

- **Efficient HAZOP Workshop Delivery:** Improved facilitation techniques can reduce unproductive discussions, clarify study priorities, encourage participation and help teams achieve their objectives within planned workshop schedules.

- **Improved Recommendation Quality:** Structured analysis and clear documentation support the development of practical, technically justified and measurable action items.

- **Better Compliance and Governance:** Consistent HAZOP practices help organisations maintain documented risk assessments, demonstrate systematic process hazard analysis and support applicable regulatory, industry and internal process safety requirements.

- **Stronger Multidisciplinary Collaboration:** Effective HAZOP leadership improves communication between engineering, operations, maintenance, process safety, instrumentation and project management teams.

- **Improved Action Tracking and Accountability:** Participants learn to formulate clear recommendations with defined responsibilities, priorities and follow-up expectations, strengthening the implementation of safety improvements.

- **Reduced Operational and Business Risk:** More effective hazard analysis and safeguard evaluation can contribute to preventing process incidents, reducing downtime, protecting assets and supporting operational continuity.

## PERSONAL IMPACT

Attending the HAZOP Study Leadership and Facilitation Techniques Training Course helps professionals develop the technical understanding and leadership skills necessary to guide process hazard analysis activities effectively.

- **Advanced HAZOP Expertise:** Participants strengthen their understanding of HAZOP methodology, deviation analysis, hazard identification, risk assessment and safeguard evaluation.

- **Improved Facilitation Skills:** Learners develop the ability to lead technical discussions, structure analytical sessions, ask effective questions and guide teams towards meaningful conclusions.

- **Greater Confidence in Workshop Leadership:** Participants become more confident in managing multidisciplinary teams, addressing disagreements and maintaining the focus of HAZOP studies.

- **Enhanced Analytical and Problem-Solving Abilities:** The course develops systematic approaches to identifying causes, evaluating consequences, assessing protection layers and analysing process safety challenges.

- **Better Technical Decision-Making:** Learners improve their ability to evaluate risk-related findings, distinguish meaningful hazards from unsupported assumptions and recommend appropriate actions.

- **Improved Communication and Collaboration:** Participants develop stronger communication skills for working with engineers, operators, safety specialists, project managers and technical stakeholders.

- **Practical Documentation Skills:** Learners improve their ability to prepare structured HAZOP records, develop action items and communicate findings clearly and professionally.

- **Professional Development:** The training supports professionals seeking to strengthen their expertise in process safety, process hazard analysis, risk management and HAZOP leadership.

- **Greater Workplace Effectiveness:** Participants can apply the knowledge gained to improve the preparation, execution, reporting and follow-up of HAZOP studies within their organisations.

## WHO SHOULD ATTEND

The HAZOP Study Leadership and Facilitation Techniques Training Course is designed for professionals involved in process safety, engineering, operations, project development, risk management and technical decision-making within oil and gas and other process industries.

- **HAZOP Leaders and HAZOP Facilitators:** Professionals responsible for leading, coordinating and facilitating HAZOP workshops who want to improve their analytical and leadership techniques.

- **Process Safety Engineers:** Specialists involved in process hazard analysis, risk assessment, safety studies and process safety improvement initiatives.

- **Process Engineers:** Engineers responsible for process design, operating conditions, process optimisation and identifying potential deviations from design intent.

- **Operations Managers and Operations Engineers:** Professionals responsible for safe facility operations, operational procedures, process control and managing process-related risks.

- **Project Engineers and Project Managers:** Professionals involved in engineering design, project development, facility modification, commissioning and project safety reviews.

- **Instrumentation and Control Engineers:** Specialists involved in control systems, instrumentation, alarms, interlocks, safety instrumented systems and process protection.

- **Mechanical and Maintenance Engineers:** Professionals responsible for equipment integrity, reliability, maintenance planning and identifying equipment-related process hazards.

- **Risk Assessment Professionals:** Specialists involved in risk identification, consequence analysis, risk evaluation, mitigation planning and safety management.

- **Safety Managers and HSE Professionals:** Professionals responsible for process safety programmes, hazard identification, safety reviews, compliance and risk-reduction activities.

- **Plant Managers and Technical Supervisors:** Managers responsible for operational safety, technical oversight, multidisciplinary coordination and ensuring effective implementation of HAZOP recommendations.

- **Consultants and Technical Advisors:** Professionals who conduct, support, review or advise organisations on HAZOP studies and process safety management practices.

- **Engineering and Process Safety Graduates:** Early-career professionals seeking to develop foundational knowledge of HAZOP methodology, process hazard analysis and workshop facilitation.

## COURSE OUTLINE

### HAZOP Fundamentals, Study Preparation and Leadership Responsibilities

- Introduction to HAZOP methodology and its role in process safety management.
- Evolution, principles and applications of HAZOP studies across oil and gas facilities.
- Understanding HAZOP within the process safety lifecycle.
- Relationship between HAZOP, process hazard analysis, risk assessment and operational safety.
- HAZOP objectives, scope, limitations and expected outcomes.

- Overview of relevant standards, guidance and industry practices, including IEC 61882 and applicable organisational procedures.
- Understanding design intent, process conditions and operating requirements.
- HAZOP study planning, preparation and scope definition.
- Establishing study boundaries and defining the HAZOP team composition.
- Roles and responsibilities of the HAZOP leader, recorder, process engineers, operations personnel and technical specialists.
- Selection and preparation of process documentation, including P&IDs, process flow diagrams, equipment information and operating procedures.
- Identifying information gaps and resolving documentation issues before the study begins.
- HAZOP node selection principles and practical approaches to dividing process systems into manageable study sections.
- Preparing study agendas, workshop schedules and documentation templates.
- Practical exercise: Reviewing a process diagram, identifying study boundaries and preparing a HAZOP session plan.

### HAZOP Methodology, Guidewords and Systematic Deviation Analysis

- Structure and workflow of a standard HAZOP study.
- Understanding process parameters, design intent and operating conditions.
- Introduction to HAZOP guidewords and their analytical purpose.
- Application of guidewords to relevant process parameters.
- Understanding common deviations, including No Flow, More Flow, Less Flow, Reverse Flow, High Pressure, Low Pressure, High Temperature, Low Temperature and other relevant conditions.
- Analysis of deviations related to level, composition, phase, reaction, utility failure and operational conditions.
- Applying guideword and parameter combinations systematically.

- Identifying credible deviations and avoiding irrelevant or unsupported scenarios.
- Developing structured questions to encourage meaningful hazard identification.
- Identifying potential causes of deviations, including equipment failure, human error, control system malfunction, utility interruption and external influences.
- Analysing consequences involving personnel safety, equipment damage, environmental impact, operational disruption and business losses.
- Understanding process interactions, upstream and downstream effects and potential cascading failures.
- Practical exercise: Conducting a guided HAZOP analysis of a process node using guidewords and process parameters.
- Group discussion: Evaluating the quality, completeness and relevance of identified deviations.

### Safeguard Evaluation, Risk Assessment and Recommendation Development

- Identifying existing safeguards and protection measures within a HAZOP study.
- Understanding preventive, detective, mitigative and emergency response safeguards.
- Evaluating process control systems, alarms, operator actions, interlocks and shutdown systems.
- Reviewing mechanical protection measures, relief devices, containment systems and emergency arrangements.
- Understanding safeguard independence, effectiveness, reliability and limitations.
- Distinguishing safeguards from causes, consequences and recommendations.
- Introduction to qualitative and semi-quantitative risk assessment techniques.
- Risk matrices, severity classifications, likelihood assessment and risk ranking.
- Understanding risk tolerability, organisational risk criteria and assessment assumptions.
- Evaluating residual risk and identifying gaps in existing protective measures.
- Understanding the relationship between HAZOP findings, Layer of Protection Analysis (LOPA) and Safety Instrumented Systems (SIS), where applicable.

- Developing recommendations based on identified risk and safeguard deficiencies.
- Prioritising recommendations according to risk, technical feasibility and organisational requirements.
- Writing clear, specific, measurable and actionable HAZOP recommendations.
- Practical exercise: Assessing risk and safeguards for selected process deviations and developing suitable recommendations.

### HAZOP Study Leadership and Advanced Facilitation Techniques

- The responsibilities and competencies of an effective HAZOP leader.
- Leadership behaviours that promote analytical rigour, participation and productive discussions.
- Preparing and opening a HAZOP workshop.
- Establishing workshop ground rules, objectives, expectations and working methods.
- Managing the HAZOP workflow and maintaining consistent study progression.
- Facilitating structured discussions using guidewords, parameters and design intent.
- Asking effective questions to uncover causes, consequences, safeguards and operational vulnerabilities.
- Encouraging participation from multidisciplinary team members.
- Managing dominant participants, quiet team members and conflicting technical opinions.
- Resolving disagreements through evidence-based discussion and structured analysis.
- Handling uncertainty, incomplete data and unresolved technical issues.
- Managing time, discussion priorities and complex process nodes.
- Recognising analytical drift, repetitive discussions and unsupported assumptions.
- Maintaining focus on study objectives without compromising technical quality.
- Managing difficult workshop situations, including unclear design intent, conflicting documentation and inadequate preparation.

- Facilitating remote and hybrid HAZOP workshops using digital collaboration and documentation tools.
- Practical simulation: Leading a multidisciplinary HAZOP discussion and managing challenging workshop dynamics.

### HAZOP Documentation, Study Review and Action Management

- Structure and requirements of effective HAZOP documentation.
- Developing and maintaining HAZOP worksheets and study records.
- Recording deviations, causes, consequences, safeguards, risk rankings and recommendations.
- Ensuring consistency, accuracy, traceability and completeness of HAZOP findings.
- Developing action items with clearly defined responsibilities, priorities and completion expectations.
- Managing HAZOP recommendations and follow-up actions.
- Understanding action closure, verification, evidence requirements and escalation of overdue actions.
- Reviewing and validating HAZOP findings with technical stakeholders.
- HAZOP report preparation, executive summaries and communicating key risk findings.
- Quality assurance and quality review of HAZOP studies.
- Common HAZOP study weaknesses and improvement opportunities.
- Integrating HAZOP findings into engineering design, operating procedures, management of change and process safety activities.
- Understanding HAZOP review requirements during facility modifications, project development and operational changes.
- Practical workshop: Conducting a mini-HAZOP study from node selection to deviation analysis, safeguard assessment and recommendation development.
- Group presentation and review of study findings.
- Final discussion on HAZOP leadership development, workplace application and continuous improvement.

## SCHEDULED DATES

| Dates | Venue | Format | Fee |
|---|---|---|---|
| 15 - 19 Feb 2027 | Abu Dhabi, United Arab Emirates | In person | On request |
| 15 - 19 Feb 2027 | Abuja, Nigeria | In person | On request |
| 15 - 19 Feb 2027 | Accra, Ghana | In person | On request |
| 15 - 19 Feb 2027 | Addis Ababa, Ethiopia | In person | On request |
| 15 - 19 Feb 2027 | Al Ain, United Arab Emirates | In person | On request |
| 15 - 19 Feb 2027 | Al Khobar, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Alberta, Canada | In person | On request |
| 15 - 19 Feb 2027 | AlUla, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Amman, Jordan | In person | On request |
| 15 - 19 Feb 2027 | Amsterdam, The Netherlands | In person | On request |
| 15 - 19 Feb 2027 | Athens, Greece | In person | On request |
| 15 - 19 Feb 2027 | Baku, Azerbaijan | In person | On request |
| 15 - 19 Feb 2027 | Barcelona, Spain | In person | On request |
| 15 - 19 Feb 2027 | Berlin, Germany | In person | On request |
| 15 - 19 Feb 2027 | Boston, USA | In person | On request |
| 15 - 19 Feb 2027 | Brussels, Belgium | In person | On request |
| 15 - 19 Feb 2027 | Budapest, Hungary | In person | On request |
| 15 - 19 Feb 2027 | Cairo, Egypt | In person | On request |
| 15 - 19 Feb 2027 | Cape Town, South Africa | In person | On request |
| 15 - 19 Feb 2027 | Casablanca, Morocco | In person | On request |
| 15 - 19 Feb 2027 | Dammam, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Dhahran, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Doha, Qatar | In person | On request |
| 15 - 19 Feb 2027 | Dubai, United Arab Emirates | In person | On request |
| 15 - 19 Feb 2027 | Edinburgh, United Kingdom | In person | On request |

| Dates | Venue | Format | Fee |
|---|---|---|---|
| 15 - 19 Feb 2027 | Edmonton, Canada | In person | On request |
| 15 - 19 Feb 2027 | Frankfurt, Germany | In person | On request |
| 15 - 19 Feb 2027 | Geneva, Switzerland | In person | On request |
| 15 - 19 Feb 2027 | Houston, USA | In person | On request |
| 15 - 19 Feb 2027 | Istanbul, Turkey | In person | On request |
| 15 - 19 Feb 2027 | Jakarta, Indonesia | In person | On request |
| 15 - 19 Feb 2027 | Jeddah, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Jubail, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Khamis Mushait, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Kigali, Rwanda | In person | On request |
| 15 - 19 Feb 2027 | Kuala Lumpur, Malaysia | In person | On request |
| 15 - 19 Feb 2027 | Lisbon, Portugal | In person | On request |
| 15 - 19 Feb 2027 | Liverpool, United Kingdom | In person | On request |
| 15 - 19 Feb 2027 | London, United Kingdom | In person | On request |
| 15 - 19 Feb 2027 | Los Angeles, USA | In person | On request |
| 15 - 19 Feb 2027 | Luanda, Angola | In person | On request |
| 15 - 19 Feb 2027 | Madrid, Spain | In person | On request |
| 15 - 19 Feb 2027 | Manama, Bahrain | In person | On request |
| 15 - 19 Feb 2027 | Marbella, Spain | In person | On request |
| 15 - 19 Feb 2027 | Marrakech, Morocco | In person | On request |
| 15 - 19 Feb 2027 | Miami, USA | In person | On request |
| 15 - 19 Feb 2027 | Milan, Italy | In person | On request |
| 15 - 19 Feb 2027 | Munich, Germany | In person | On request |
| 15 - 19 Feb 2027 | Muscat, Oman | In person | On request |
| 15 - 19 Feb 2027 | Nairobi, Kenya | In person | On request |
| 15 - 19 Feb 2027 | New York, USA | In person | On request |

| Dates | Venue | Format | Fee |
|---|---|---|---|
| 15 - 19 Feb 2027 | Nice, France | In person | On request |
| 15 - 19 Feb 2027 | Oslo, Norway | In person | On request |
| 15 - 19 Feb 2027 | Paris, France | In person | On request |
| 15 - 19 Feb 2027 | Port Louis, Mauritius | In person | On request |
| 15 - 19 Feb 2027 | Prague, Czech Republic | In person | On request |
| 15 - 19 Feb 2027 | Pretoria, South Africa | In person | On request |
| 15 - 19 Feb 2027 | Riyadh, Saudi Arabia | In person | On request |
| 15 - 19 Feb 2027 | Rome, Italy | In person | On request |
| 15 - 19 Feb 2027 | Sarajevo, Bosnia and Herzegovina | In person | On request |
| 15 - 19 Feb 2027 | Sharm El Sheikh, Egypt | In person | On request |
| 15 - 19 Feb 2027 | Singapore, Singapore | In person | On request |
| 15 - 19 Feb 2027 | Stockholm, Sweden | In person | On request |
| 15 - 19 Feb 2027 | Tokyo, Japan | In person | On request |
| 15 - 19 Feb 2027 | Toronto, Canada | In person | On request |
| 15 - 19 Feb 2027 | Tromso, Norway | In person | On request |
| 15 - 19 Feb 2027 | Vienna, Austria | In person | On request |
| 15 - 19 Feb 2027 | Zagreb, Croatia | In person | On request |
| 15 - 19 Feb 2027 | Zurich, Switzerland | In person | On request |
| 15 - 19 Feb 2027 | Online, Virtual | Online | On request |

## CERTIFICATE