

Advanced Failure Analysis and Risk-Based Methods (HAZOP, FMEA, RBM) for Process Safety and Asset Reliability – Program Agenda

Day One:

Introduction to Risk Management and HAZOP Fundamentals

- Principles of process safety and reliability
 - Overview of risk management methodologies
 - Introduction to Hazard and Operability (HAZOP) studies
 - The HAZOP team and its roles
 - Systematic application of HAZOP guide words
 - Practical HAZOP workshop and case study
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Day Two:

Advanced HAZOP and Introduction to FMEA

- HAZOP for continuous and batch processes
 - Common pitfalls and challenges in HAZOP
 - Documentation and reporting of HAZOP findings
 - Fundamentals of Failure Mode and Effects Analysis (FMEA)
 - FMEA team roles and responsibilities
 - Identifying failure modes and their effects
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Day Three:

FMEA and FMECA Deep Dive

- Severity, occurrence, and detection ranking
- Calculating the Risk Priority Number (RPN)
- Introduction to Failure Mode, Effects, and Criticality Analysis (FMECA)
- Applying FMECA for critical asset identification
- Practical exercises on FMEA/FMECA

- **Linking FMEA results to actionable plans**
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Day Four:

Principles of Risk-Based Methods (RBM)

- **Introduction to Risk-Based Inspection (RBI)**
 - **Understanding the risk matrix and its components**
 - **Quantitative vs. qualitative risk assessment**
 - **Developing a risk-based maintenance strategy**
 - **Case studies on RBM implementation**
 - **Integrating RBM with asset integrity management**
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Day Five:

Integrated Risk Management and Program Development

- **Connecting HAZOP, FMEA, and RBM for a holistic approach**
- **Implementing a continuous risk assessment program**
- **Practical application to a real-world scenario**
- **Leading and facilitating risk assessment workshops**
- **Developing an integrated asset reliability plan**
- **Review, Q&A, and final discussion**