STEP IN
ENGINEERING

COMPREHENSIVE TRAINING IN PROCESS & TECHNICAL SAFETY STUDY

Overview

Stepin Engineering provides targeted training for Chemical and Petrochemical Engineers in the Oil and Gas field, enhancing their skills and enabling career progression. Our programs equip Professionals with Industry-specific expertise, ensuring they stay competitive and adaptable to Industry changes, fostering both personal and professional development.

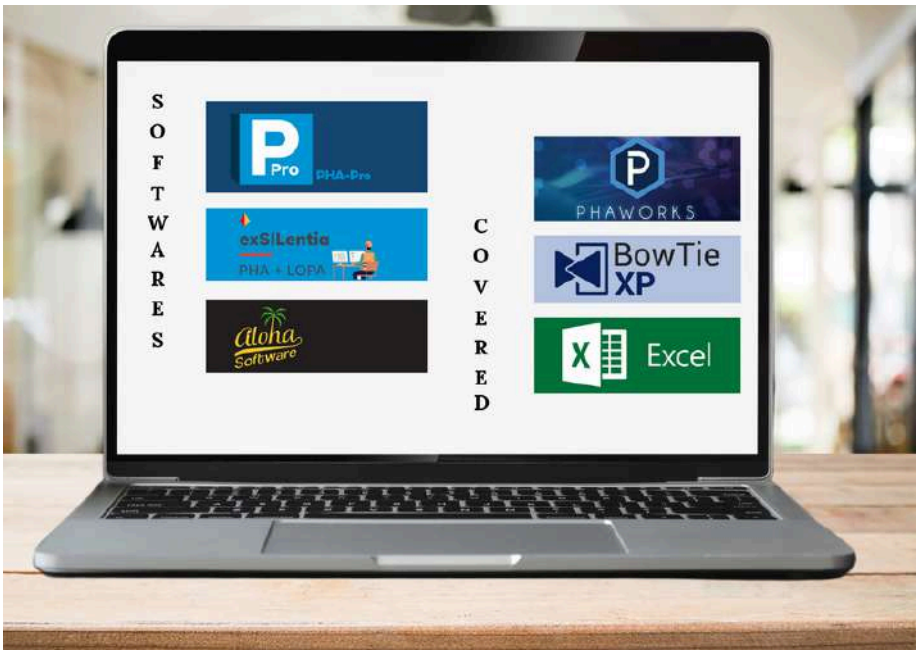
OBJECTIVE

The training program seeks to provide participants with promising prospects in the Oil and Gas Industries, contingent on thorough comprehension and daily evaluations. Upon finishing, individuals will acquire comprehensive knowledge of Industry operations, safety measures, and risk evaluation, enabling them to make significant contributions in their positions.

AREA OF STUDY

- ✔ Overview of Oil & Gas Industry
- ✔ Process Flow Diagrams(PFD) and Piping and Instrumentation Diagrams(P&ID)
- ✔ Hazard Identification (HAZID)
- ✔ Hazard and Operability Study (HAZOP)
- ✔ Safety Integrity Study (SIL) Assessment
- ✔ Safety Integrity Study (SIL) Verification
- ✔ Quantitative Risk Assessment (QRA) and Fire and Explosion Risk Assessment (FERA)
- ✔ Hazardous Area Classification (HAC)
- ✔ Bow-Tie Analysis
- ✔ Harnessing the power of network using linkedin.

Softwares Covered



TRAINING MODULES

OVERVIEW OF OIL AND GAS INDUSTRY

MODULE 1

INTRODUCTION

The Oil and Gas sector is vital for fulfilling worldwide energy needs, encompassing activities like exploration, extraction, refining, and transportation of petroleum products. Proficiency in the fundamentals of the Oil and Gas industry is indispensable for professionals engaged in this domain.

OBJECTIVE

The aim of oil and gas training is to furnish participants with a thorough grasp of crude oil availability and extraction, refinery processes, instrumentation, safety protocols, and product transportation. This training endeavors to empower participants with the expertise essential for effective performance within the Oil and Gas sector.

TOPICS COVERED

- Overview of the Oil and Gas Sector
- Crude Oil: Types, Characteristics, and Extraction
- Initial Processing and Transport Logistics
- Refinery Operations: Primary and Secondary Processing, Methodologies, and Product Properties
- Instrumentation, Operational Challenges, and Product Storage and Transportation.

PROCESS FLOW DIAGRAMS (PFD) AND PROCESS AND INSTRUMENTATION DIAGRAMS(P&ID)

MODULE 2

INTRODUCTION

Process Flow Diagram (PFD) visually presents the main elements, flow routes, and critical process conditions of a system or procedure, offering a streamlined view of material, energy, and information movement. Piping and Instrumentation Diagrams (P&IDs) visually represent process flow, equipment, and instrumentation, crucial for newcomers to understand process design, equipment operations, and safety considerations efficiently.

OBJECTIVE

The Objective of Process Flow Diagrams (PFD's) is to visually represent process flow and components, aiding in communication, parameter analysis, and safety awareness while fostering expertise in Process Engineering and Manufacturing Industries. Piping and Instrumentation Diagrams (P&IDs) aim to familiarise users with their purpose, structure, symbols, technical information, and the significance of notes, enabling comprehension and analysis of piping, equipment, and instrumentation details.

TOPICS COVERED

- PFD Purpose, Structure, Technical Details
- Control Scheme, Process Conditions
- Reading and Understanding PFDs
- P&ID Purpose, Structure, Legends
- Technical Details in P&IDs
- Piping, Equipment, Instrument, Electrical Systems

HAZARD IDENTIFICATION (HAZID)

MODULE 3

INTRODUCTION

The Hazard Identification (HAZID) process involves systematically identifying potential hazards in industrial operations, playing a pivotal role in safety and accident prevention across Industries.

OBJECTIVE

This course aims to acquaint participants with HAZID principles and methodologies, empowering them to adeptly recognize and assess hazards in diverse work settings. By end of the course, participants will possess the skills to conduct HAZID studies, thereby strengthening safety protocols within their organizations.

TOPICS COVERED

- Hazard identification concepts
- HAZID methodology
- Process hazard identification
- Consequence assessment
- Risk prioritisation techniques, documentation
- Utilizing PHA PRO software for HAZID

HAZARD AND OPERABILITY STUDIES (HAZOP)

MODULE 4

INTRODUCTION

HAZOP study aims to uncover deviations from planned process or system operations that might lead to hazards or undesirable consequences, covering safety, environmental, and operational concerns.

OBJECTIVE

The goal of HAZOP study is to meticulously analyze processes or systems, identifying deviations from intended designs or operations that could potentially result in hazardous or unfavorable outcomes.

TOPICS COVERED

- Safety Talk (Bhopal Incident).
- HAZOP Overview.
- Advantages & Disadvantages of HAZOP.
- HAZOP Methodology
- Risk Matrix.
- PHA Software for HAZOP.
- HAZOP Worksheet

SAFETY INTEGRITY LEVEL (SIL) ASSESSMENT

MODULE 5

INTRODUCTION

Safety Integrity Level (SIL) assessment is vital for guaranteeing the safety and dependability of industrial systems by evaluating safety function integrity to prevent or mitigate hazards.

OBJECTIVE

The Primary goal of SIL assessment is to quantitatively evaluate the efficacy of implemented safety measures within a system, identifying and analysing potential hazards to determine the necessary SIL level for achieving acceptable safety standards.

TOPICS COVERED

- Hazard identification and analysis
- Risk assessment methods & Functional safety standards
- Safety instrumented systems (SIS) implementation
- Probability of failure on demand (PFD) calculations
- SIL assessment and validation techniques

SAFETY INTEGRITY LEVEL (SIL) VERIFICATION

MODULE 6

INTRODUCTION

HAZOP study aims to uncover deviations from planned process or system operations that might lead to hazards or undesirable consequences, covering safety, environmental, and operational concerns.

OBJECTIVE

The objective is to confirm Safety Instrumented System (SIS) meets specified safety requirements, achieves targeted SIL, and effectively mitigates identified hazards

TOPICS COVERED

- Functional safety standards (e.g., IEC 61508)
- SIL allocation methods
- Verification techniques
- SIF design
- Documentation for SIL verification, including Excel integration
- Factors affecting SIL performance

QUANTITATIVE RISK ASSESSMENT (QRA) & FIRE AND EXPLOSION RISK ASSESSMENT (FERA)

MODULE 7

INTRODUCTION

Quantitative Risk Assessment (QRA) is crucial for assessing safety in the Chemical Process Industry, evaluating risks linked to the utilization, handling, transportation, and storage of hazardous materials, assigning numerical probabilities and consequences to potential incidents. Fire and Explosion Risk Assessment (FERA) offers fundamental insights into evaluating risks related to fires and explosions across diverse environments.

OBJECTIVE

The goals of QRA includes offering a dependable, well-organised, and thorough method for risk assessment, facilitating informed decision-making within organisations, crafting efficient risk management strategies, and ensuring adherence to regulatory standards. FERA aims to furnish individuals with essential competencies to proficiently recognize, analyze, and mitigate fire and explosion risks.

TOPICS COVERED

- QRA Methodology
- Risk, Consequence and Frequency Analysis
- ALARP Demonstration and Software Usage
- Understanding fire and explosion Risk Assessment
- Basics of risk assessment
- Identification of ignition sources and fuels
- Overview of preventive measures in Fire and Explosion Scenarios

HAZARDOUS AREA CLASSIFICATION (HAC)

MODULE 8

INTRODUCTION

Hazardous Area Classification (HAC) identifies zones with potential explosive environments due to flammable substances, guiding equipment specifications based on operating conditions.

OBJECTIVE

HAC Analysis categorizes facility zones with flammable materials to mitigate ignition risks, safeguarding against fires, explosions, and protecting personnel.

TOPICS COVERED

- Introduction to HAC
- Evolution and applicability
- Standards and methods, including Excel integration
- Ventilation impact
- Grade and extent determination

BOW TIE ANALYSIS

MODULE 9

INTRODUCTION

Bow Tie Analysis visualizes and mitigates hazards by outlining causes, consequences, and preventive measures.

OBJECTIVE

Use Bow Tie Analysis proactively for risk management, enhancing safety and reducing incident impact.

TOPICS COVERED

- Bow Tie Analysis methodology
- Hazard identification and consequences
- Causes analysis and preventive barriers
- Control measure effectiveness assessment
- Additional preventive measures implementation
- Emergency response plan development

HARNESSING THE POWER OF NETWORK USING LINKEDIN

MODULE 10

INTRODUCTION

Unlock the networking potential through our LinkedIn course, mastering the art of creating valuable connections and enhancing your professional image effortlessly.

OBJECTIVE

Develop a captivating LinkedIn profile showcasing your expertise and accomplishments. Strategically grow your network by connecting with industry experts and leaders. Utilize advanced LinkedIn features to interact with your network, share insights, and stay abreast of industry trends

TOPICS COVERED

- Optimizing LinkedIn profile
- Building powerful network
- Leveraging search and messaging tools
- Crafting engaging content
- Utilizing LinkedIn groups for outreach

TRAINERS

TRAINER NAME : MR. SRINIVASAN V (SENIOR CONSULTANT – PROCESS SAFETY ENGINEERING)

TRAINER NAME : MR. SRIDHAR T V (LEAD ENGINEER-PROCESS & TECHNICAL SAFETY)

TRAINER NAME : MR. VINOD (SENIOR TECHNICAL SAFETY ENGINEER)

SCHEDULE

S. No	Date	Day	Description	Trainer	Time	Online Assessment 5PM - 7PM
1	15-Jun-24	Saturday	Overview of Oil & Gas Industry	Srinivasan V	10 am- 1 pm	Overview of Oil & Gas Industry
2	16-Jun-24	Sunday	Process Design Fundamentals (PFD) & Piping and Instrumentation Diagrams (P&IDS)	Srinivasan V	10 am- 1 pm	Process Design Fundamentals (PFD) & Piping and Instrumentation Diagrams (P&IDS)
3	22-Jun-24	Saturday	HAZARD & Operability Studies (HAZOP) & Hazard Identification (HAZID)	Sridhar T V	10 am- 1 pm	HAZARD & Operability Studies (HAZOP)
4	23-Jun-24	Sunday	Safety Integrity Level (SIL) Assessment	Sridhar T V	10 am- 1 pm	Quantitative Risk Assessment (QRA) & Fire And Explosion Risk Assessment (FERA) Basics
5	29-Jun-24	Saturday	Quantitative Risk Assessment (QRA) and Fire & Explosion Risk Assessment (FERA)	Vinod	10 am- 1 pm	Safety Integrity Level (SIL) Assessment
6	30-Jun-24	Sunday	Safety Integrity Level (SIL) Verification	Vinod	10 am- 1 pm	Safety Integrity Level (SIL) Verification
7	06-Jul-24	Saturday	Hazardous Area Classification (HAC)	Vinod	10 am- 1 pm	Hazardous Area Clasification (HAC)
8	07-Jul-24	Sunday	Bow-tie Analysis	Srinivasan V	10 am- 1 pm	Bowtie analysis
9	13-Jul-24	Saturday	Harnessing the power of Network using Linkedin	John Kingsley	10 am- 1 pm	Harnessing the power of Network using Linkedin

THANK YOU

Contact Us:

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