

Think Plus Academy Sdn Bhd

A-7-1, Ativo Plaza,
Bandar Sri Damansara,
Kuala Lumpur.

Tel : +60362804985

Fax : +60362804960

E-mail : academy@thinkplusglobalgroup.com

Website : www.thinkplus-academy.com



HAZOP Study

TARGET GROUP

This course provides an overview of significant aspects and considerations of HAZOP for those who are involved in the:

- Management staff
- Engineering (design, process, facilities, instrumentation and control)
- Operations Engineers and process safety personnel
- Health Safety and Environment HSE staff
- Plant operators and maintenance personnel

ABOUT THIS COURSE

Process Hazards Analyses have become an integral part of the way in which most companies in the petroleum industries do business. Furthermore, many regulatory bodies require that PHAs be conducted on a regular basis. A wide range of PHA techniques is available, but all are team efforts in which a combination of plant knowledge and creative thinking helps everyone understand what hazards exist on the facility.

HAZOP method is one of the most popular PHA techniques used in the petroleum industry and had been selected by many companies to be the accredited PHA method to be applied.

HAZOP studies for Team leaders course is proposed to give an introduction of the principals of the overall meaning of the Process Hazard Analysis (PHA) with brief of the most commonly used methods and concentration on HAZOP method to learn the tips, tricks, and secrets that analysts use to conduct efficient HAZOP.

OBJECTIVES

- Understand the role of the Process Hazards Analysis in the Petroleum Industry.
- Understand the Process Hazards Analysis PHA Terminologies.
- Appreciate the inherent Hazards in the Petroleum Industry.
- Differentiate between the Occupational Safety and The Process Safety.
- Concentrate on methods of evaluating the risk.
- Increase the Awareness of participants of the differences between PHA Methods.
- Learn the most commonly used methods in the petroleum Industry (HAZOP Method).
- Understand the HAZOP Review application for typical facilities.
- Understand HAZOP review reference data.
- Learn the approaches of identifying process nodes and genera HAZOP review suggestions and tips.
- Differentiate between the Process Control and Safety Control systems
- Increase the Awareness of the participants about the Protection layers
- Differentiate between the Prevention Layers and Mitigation Layers
- Learn HAZOP reporting and documentations.
- Increase the ability of the audiences to participate efficiently in real HAZOP Studies



COURSE CONTENT

Module One:

- Course Introduction
- Pre-test query
- Hazards
- Approaches of Hazards Identification
- Process and Process Variables
- Process Hazards Analysis (PHA)
- Process Safety and Occupational Safety
- Minimum Required information
- Safe Operating Limits
- Safeguards
- Process Hazard Analysis Assumptions
- Hazards Management Process
- Factors Increases the Hazards Potential for Process Industries
- Risk
- Component of Risk
- Consequences
- Voluntary & Involuntary Risk
- Tolerable Risk in the industries
- Evaluating the Risk
- ALARP
- Risk Matrices
- Evaluating the Frequency
- Evaluating the Severity
- Evaluating the Overall Risk
- Risk reduction
- Principals of Protective Measures
- Protection Layers
- Prevention Layers
- Mitigation Layers
- Basic Contribution of accidents
- Initiating event
- Loss of Containment or Release of Energy
- Undesirable Events

Module Two:

Introduction to HAZOP Studies

- HAZOP Method
- HAZOP Terminologies
- Systematic Features and creative thinking
- Guide Word Approach
- Process Deviation
- HAZOP Matrix

Module Three:

- General Process Deviations
- HAZOP study Assumptions
- HAZOP Review Applications
- Node / Section
- Node Identification
- Node Sizing and selection
- Factors affecting Node selection
- Guidelines of choosing Node
- HAZOP Algorithm and flowchart
- Ideal HAZOP Review Reference Data
- Credible Scenarios or Causes
- Non-Credible Scenarios or Causes
- HAZOP Technical Suggestions
- HAZOP Review Suggestions
- HAZOP Recommendations and reporting
- Administrative Controls in HAZOP studies
- Engineering Controls in HAZOP studies
- Failure of Administrative and/or Engineering controls
- Lack of Double jeopardizes in HAZOP studies
- HAZOP recording sheets
- HAZOP Leadership
- Approaches of assigning Protection measures
- Prescriptive Approaches
- Performance Based Approaches

Module Four:

- HAZOP WORKSHOP
- HAZOP Software's utilization with examples
- Stages of Risk Assessment
- Risk Criteria
- Estimating Likelihood
- Failure Modes
- Safe Failures
- Dangerous Failures
- Detected/Undetected Failures
- Random failures
- Common Cause Systematic failures
- Synthetic method of estimating Likelihood
- Hazard Rate
- Demand Rate
- Probability of Failure on Demand (PFD)
- Safety Instrumented System(SIS)
- Role of (SIS)
- Safety Integrity Requirement
- Safety Integrity Level (SIL)
- Determining Safety Integrity Level (SIL)
- Risk Reduction and Reliability Assessment
- Reliability Analysis
- Voting And Redundancy
- Diversifications
- Course Final Test
- Course Close Out

DURATION

5 days

LOCATION

Malaysia