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## Human Factor and Human Error in Complex and Hazardous Systems

### Overview

Human error plays a significant role in contributing to many mishaps. Approximately 70%-90% of accidents under complex and high technology system are caused by human error such as Chernobyl, King Cross undergrounds fire, Challenger accidents, Tenerife runway collision, and many more. Understanding and preventing human error can improve system safety and reduce safety risk caused by human error. Understanding and preventing human error can improve system safety and reduce safety risks caused by human error. The training workshop provides human error reduction practices combine with a comprehensive set of tools and techniques required to prevent and reduce human errors that occurred in your complex environment. The interactive training workshop is intentionally designed for those who responsible for or concerned with the task-related activities that aims to prevent operational error, increase safety level, and reduce risks. This training workshop is targeted at various industries, not a specific one.

### Objectives


The 2 days interactive training workshop will enable you to learn how to

- Understand a key concept of human error that occurred in your complex environment
- Identify the key contributing factors to human error
- Apply human factor concept to prevent human error
- Build an effective defence against error
- Utilize a comprehensive set of tools and techniques required to prevent and reduce human error
- Build a proactive approach to manage human error

### Course Outlines

#### 1. Human Factor in Complex and High Technology System :

- Human Performance and Limitations
  - Human Information Processing
  - Sensory/Vision/Hearing
  - Perception
  - Attention
  - Memory
  - Decision Making
  - Situation Awareness
  - Workload
  - Stress
  - Fatigue
- The SHELL Model
  - Liveware : Physical Factors, Physiological Factors, Psychological Factors, Psychosocial Factors
  - Liveware-Liveware
  - Liveware-Software
  - Liveware-Hardware
  - Liveware-Environment
- Building and inspecting safety defense against error
- List key contributing factors to human error
  - Personnel Factors/fitness for duty/health
  - Teamwork
  - Information/Documentation/Manual
  - Communication
  - Supervision

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## Human Factor and Human Error in Complex and Hazardous Systems

- Job and Task
  - Tools and Equipments
  - Working environment
2. Human Error in Complex and Hazardous Systems :
    - Human error contribution to many accidents in complex and hazardous systems (safety cases)
    - Types of Human Error
  3. Safety Culture and Organizational Factors in complex and high technology environment
  4. Human factor approach to accident analysis
    - Reason model
    - HFACS model
    - ICAM model
  5. A system approach to investigate human error
  6. A proactive approach to manage human error
  7. Human error reduction techniques
  8. Hand-on exercises
  9. Practical Case Study

### Who should attend

Management executive, supervisor, safety engineer, risk manager, and all participants who are responsible for or concerned with the management and control of risks, loss and damaged in complex and hazardous technology

### Duration

2 days

### Key Points about This Course

- You will learn how to understand the application of human factor and human error concept
- You will learn how to understand the human capability and limitations and apply them to prevent human error and accidents/incidents
- You will learn how to understand and apply the application of SHELL model
- You will learn how to inspect and check your safety defence
- You will learn how to identify and classify key contributing factors to human error
- You will learn how to understand the human factor approach to accident analysis
- You will learn how to set up a structured investigation process to human error
- You will learn how to develop a systematic and proactive system to manage human error in complex and hazardous technology

### Learning Outcomes from this course

- You can understand and apply human factor and human error concept approach to prevent accidents/incidents in complex system
- You can determine key contributing factors that caused human error
- You can understand the human performance and limitations
- You can develop a structured approach to investigate human error
- You can apply and utilize a comprehensive set of tools and techniques required to prevent and reduce human error
- You can develop a proactive approach to manage human error in complex and hazardous technology