Practical Ergonomics

INTRODUCTION

- This training course studies the field of ergonomics, which is the interaction between people and machines and the factors that affect the interaction. The purpose of ergonomics is to improve the performance of process systems by improving human-machine interaction.
- The training course is designed to provide delegates with the basic theoretical and practical assessment tools that will enable them to carry out practical task analysis and subsequently introduce real improvements of ergonomic based human-machine interaction performance.

This training course will highlight:

- Task analysis and risk reduction
- Human-Machine systems
- Body mechanics at work
- Human information processing
- Design of displays and controls
- Human error in accidents

OBJECTIVES

On successful completion of this training course delegates will be able to:

- Appreciate and understand the field of ergonomics
- Understand the concept of the human-machine interaction
- Know how to use practical task analysis tools
- Determine the sources of human variability
- Understand the methodologies, as used in risk assessment and design
- Appreciate the ergonomic approach to workplace/job task design

WHO SHOULD ATTEND?

- This training course is for anyone wanting to understand the field of ergonomics for improving human-machine interactions, including the design, testing and evaluation of workplaces, process plant, production operations, maintenance work and human error related accident investigations.
- Personnel who are or will be responsible for the designing, evaluating, testing, operating, and maintaining human-centered safety systems
- Experienced professionals who want to review or broaden their understanding of ergonomics and human factors
- Asset management team members
- Design and Electrical Engineers
- Instrument and Process Engineers and Technicians
- Mechanical engineers and technicians
- Operations personnel

Course Outline

Introduction to Ergonomics

- What is ergonomics?
- Biomechanical, physiological and movement background
- Principles of human-machine interaction systems
- Basic work systems – application of ergonomics
- Ergonomic application principles
- Ergonomic benefits for oil and gas process industry

Body Mechanics – Risk Assessment and Design

- Basic body mechanics
- Postural stability and postural adaptation
- Ergonomics and musculoskeletal system
- Biomechanics and spinal loading
- Role of occupational factors

Physical and Visual Environment – Measurement and Design

- Vision and the eye
- Measurement of light
- Lighting design considerations
- Visual fatigue, eyestrain and near work
- Methods in risk assessment and task design

Human Information Processing

- From sensation to perception
- Short-term and long-term memory in the workplace
- Simultaneous tasks and human response
- Skilled versus unskilled operators
- Cognitive systems and Mental workload
- Human error, accidents, and safety

Systems Design and Assessment

- System design methods for ergonomics
- Prevention of error in human-machine interaction
- Design of displays and controls
- Ergonomic checklists
- Work organization and the ergonomic approach
- Implementing ergonomic human-machine interaction improvements
- Summary of course key points
- Close of course