



## Process Plant Optimization Technology and Continual Improvement Training

### Description

#### Introduction

Process plant optimization plays a very important role in today's industrial world. For optimization benefits to be substantial, cost of production including operation interruptions must be kept to a minimum. This requires effective management of maintenance operations and optimization of equipment and plant reliability and availability. This also involves effective inspection and maintenance strategies, planning methods. Plant optimization can be an effective way to achieve improved profitability.

Important aspect of process plant optimization is related to system energy management and energy consumption reduction. Industrial processes and systems offer significant potentials for savings. Process changes such as advanced controls and new technologies also present opportunities for plant optimization.

This course will provide a comprehensive review of the various aspects of process plant integrity as the essential foundation for sustainable plant profitability and optimization.

#### Objectives

- To assist participants in understanding the main elements of plant optimization the way how to achieve and realize potential benefits
- To enhance the business focus of participants and equip them to make more contributions to sustainable plant profitability
- To equip maintenance professionals, planners and engineers with the knowledge to select the most appropriate methodologies for their maintenance decision-making.
- To learn how to identify the potential for reduction of energy consumption
- To provide participants with practical and effective methods and tools to perform technical and economic evaluations of the alternatives

#### Content

## Day 1 – Overview of Optimization Technologies

- Overview of optimization technologies for process plants
- Elements of process plant optimization procedure
- Constraints in optimization: production, operation, economy and environment
- Optimization approaches: mathematical models and physical models – prototype units
- Correlation between process optimization and process control in typical process plant
- Workshop: Examples and solutions

## Day 2 – Reliability, Availability and Effectiveness

- Relationship between plant reliability and availability
- Optimization of plant reliability
- Optimization of plant availability through improved maintenance
- Analysis of effectiveness of individual equipment
- Optimization of overall plant effectiveness
- Workshop: Examples and solutions

## Day 3 – Best Practices for Energy Consumption

- Optimization strategies aimed at energy consumption reduction
- World standards and benchmarking guidelines
- Best practices in process plant energy management
- Energy conservation check list in typical industrial plants
- Optimization of heat production and steam distribution and consumption
- Workshop: Examples and Solutions

## Day 4 – Maintenance Management System

- Optimization of utilization of piping systems and pipelines
- Optimization of utilization of pumps, compressors and fans
- Optimization of maintenance management system and frequency of maintenance
- Optimization of spare parts management through predictive maintenance
- Optimization of repair and alteration programs in accordance to existing codes
- Workshop: Examples and Solutions

## Day 5 – Minimization of Equipment Failure

- Risk based inspection (RBI)
- Procedures for minimizing risk of equipment failure
- Fitness for service (FFS) analysis and estimate of remaining life of equipment
- Optimization of plant economy through planned equipment replacement
- Summary and course review