



Process Plant Optimization & Energy Conservation

Course Objective:

- 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.

Course Methods

- This pioneers Process Plant Optimization Technology and Continual Improvement training course will be conducted along workshop principles with formal lectures and interactive worked examples. The emphasis in this pioneers training will be on the explanation of all technical phenomena and providing answers to problems that are encountered in everyday industrial practice related to maintenance, repair and alterations of process equipment. Each learning point will be reinforced with practical examples. There will be ample opportunities for active discussion and sharing professional experiences and exchange that will help solidify the gained knowledge. All course materials will be provided.

ORGANISATIONAL IMPACT

- Optimization of process plant operation, including equipment efficiency, energy consumption and maintenance management, is vital to the budgetary success of the organization. On completion of this pioneers Process Plant Optimization Technology and Continual Improvement training course, the delegates will be able to critically analyze the methodologies employed within the organization and instigate improvements where required.

PERSONAL IMPACT

- Technical knowledge is a key to effective control and peer respect within any process plant organization. This Pioneers Process Plant Optimization Technology and Continual Improvement training course will enable the delegates to achieve the required level of technical knowledge and skill that will be used effectively in their professional duties. With new knowledge and experience gained during the course, the delegates will achieve a great deal of personal satisfaction.

Course outline

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

Course outline

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 with Existing Codes
- Workshop: Examples and Solutions

Course outline

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