



## **MR32 - Plant Turnaround Management**

### **Course Overview**

The most demanding call on maintenance Managers and personnel comes when a plant is shut down for a period of time for maintenance. Usually a large volume of work must be completed into a relatively short period of time.

### **Scope**

The course will introduce participants to the concepts associated with the successful planning and execution of major Shutdown

### **Course objectives**

By the end of the course, the participants will be able to:

- Describe turnaround phases;
- Co-ordinate turnaround projects from planning to execution and handover
- Apply turnaround best practices
- Use critical path planning to identify risks and manage these risks effectively
- Plan to meet deadlines and complete turnaround projects within budget and on time
- Prepare bids and evaluate contractors
- Evaluate and make immediate use of Turnaround Project Management Software packages

### **Who should attend:**

This course is designed for Project Engineers, Maintenance Planners, Shutdown Managers and Coordinators, Technical Personnel, Maintenance

Supervisors and Operations staff involved in Turnarounds.

### **Training Methodology:**

The course is conducted in an interactive way to encourage participants express their views and share their experiences. The course will be presented with lectures, videos, presentations and real-life examples, exercises and case studies will be analyzed. Part of the exercises will be planning of a Plant Shutdown.

### **Course instructor:** Mr. George Loizou

George is a Mechanical Engineer with more than 34 years of experience mainly in the Oil and Gas Industry. George holds an MSc Degree from The Pennsylvania State University. He is a member of SMRP and a Certified Maintenance and Reliability Professional (CMRP). He is also member of the Cyprus Scientific and Technical Chamber and Associated member of the Institution of Mechanical Engineers of UK.

George worked as Head of Mechanical Maintenance at the Cyprus Petroleum Refinery Ltd, Engineering Manager and Terminal Manager at Cyprus Petroleum Storage Company Ltd.

He has a wide experience as a trainer, as since 2005 he has been delivering courses and seminars internationally.

**Duration:** 3 Days

**Course Venue:** TBA



**DAY 1**

**Pre-Test**

**Introduction**

- Definition
- Turnarounds, Shutdowns and Outages
- Premises
- Turnarounds VS Construction Projects

**Turnaround planning**

- Phases of the Turnaround
- The Steering Committee
- The Core Team
- Budgeting
- Turnaround Frequency
- Strategic Planning
- On-Stream Inspection Techniques

**Work Planning**

- Introduction
- The Planning process
- The Work Breakdown Structure (WBS)
- Job Staffing
- Turnaround Duration
- Work Orders and Work list generation
- Work order challenging and freezing
- Additional work approval
- Work Packages Risk Management
- Operations Plan

**DAY 2**

**Work Scheduling**

- Introduction
- Basic Scheduling Concepts
- Constraint Types
- Network Diagrams
- The Precedent Diagram Method
- Program Evaluation and Review

**Technique (PERT)**

- The Gantt Chart
- Resource Levelling
- Choosing the right program
- Work Scope Control

**Contracting**

- Introduction
- Types of Contracts
- Bidding evaluation selection and Contractor selection

**Organization**

- Organization Structure
- Key performance indicators
- Logistics and site preparation
- Waste Management

**DAY 3**

**Typical Operations Carried out during a Plant Turnaround**

- Breaking containment of process lines or vessels
- Entry of confined spaces
- Change out of catalyst materials
- Installation of new process equipment / removal of redundant equipment
- Insulation installation and removal
- Surface stripping and coating
- Servicing of SRV (Safety relief valves) and Control valves
- Welding/repair of defects
- Utilities maintenance
- Easy Bolting
- Quality

**Turnaround responsibilities**

- Introduction
- Communication
- Developing daily schedules
- Schedule updating
- Progress Reporting

**Typical equipment workscope**

- Heaters
- Vessels/Columns
- Heat exchangers
- Rotating equipment

**Health and safety aspects**

- Safety Planning
- Work permit system
- Shut down procedure & Isolation
- Preparation of the worksite
- Gas Testing
- Preparation for Cold Work
- Preparation for hot work
- Preparation for confined space entry
- Preparation for Electrical Work
- Emergency response Plan

**Commissioning and final report**

- Boxing Up Procedure
- Start-up preparations
- Start-up Assistance
- Debriefing
- Contractor Final Payment
- Final report

**Exercises**

**Final Test**