

“Physical Asset Integrity Series”



An Intensive 3 - Days Training Course On

Process Machinery Pre-Commissioning, Commissioning and Start-Up

International Principal Course Leaders: Mr.Fred Geitner,P.Eng



- More Than 50 Years of Experience in Oil, Gas and Petrochemical Industry
- Former Senior Machinery Advisor in Exxon Mobile
- Co-Author of Several Machinery Books
- International Training Instructor for Process Machinery
- Member of International Society of Tribologists and Lubrication Engineers

Kish Island-Iran
08-10 June,2019

MAT Group Ltd. is proud to present “ **Process Machinery Pre Commissioning, Commissioning and startup**” for improving knowledge, scientific and professional level of engineers. This course will be held in 3 days starting on **Saturday 8th June, 2019** from 8:30 to 17:15 in Kish Island/Iran.

COURSE OVERVIEW:

This course provides a comprehensive coverage of commissioning of machinery equipment in petrochemical plants. The course is presented by an experienced subject matter expert (SME) with extensive process and mechanical experience.

The course presents a management-oriented general framework for plant commissioning that reflects the multi-disciplinary and inter-disciplinary nature of commissioning. The roles of mechanical, EIC and process specialists are explained.

The course uses case studies to illustrate practical issues in petrochemical plant commissioning. The course material includes worksheets and checklists to support commissioning procedures that can be applied directly in your commissioning activities.

The overall objective of this course is to provide the attendees with a comprehensive knowledge on how to receive, store, prepare and commission equipment in the petrochemical industry. The intent is to learn how to minimize startup issues by using a structured approach leading to a successful plant start up.

Attendees will learn how to create procedures and check lists reflecting the steps required to prepare and monitor mechanical equipment through all stages of a safe and efficient commissioning and start-up process.

WHO SHOULD ATTEND?

This course is designed for all disciplines that are involved in plant commissioning, including engineering, construction, operations and maintenance personnel.

CHALLENGES:

It has been said, the way your machinery goes, the way your process facility goes. Poor project completion and slow ramp-ups can seriously erode business and project value. They can cost an organization millions of dollars and diminish investor confidence. An operation's ability to reach production safely and on schedule while minimizing unproductive time is critical to generating the greatest return on capital investment.

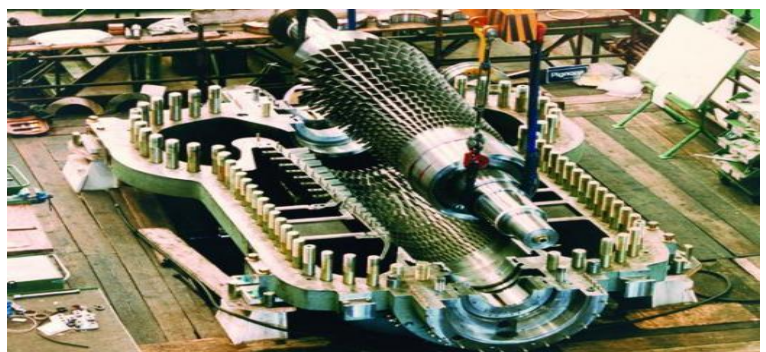
Commissioning is the final phase in project execution and the first step in setting up the operating team for success. Any cost savings accrued through the project life cycle can be completely lost if a facility isn't commissioned efficiently, safely, and on or ahead of schedule. Doing so effectively requires a comprehensive and uncompromising strategy. It must be centered on an optimized commissioning sequence that drives engineering, procurement, and construction towards the quickest and safest start of production. Accomplishing this goal requires strategies that consider the transition from bulk progress to system completion in a process-based, logical order.

When properly executed by experienced partners, these commissioning strategies are the key to reducing start-up costs, maximizing cash flow, and getting a more rapid return on investment for stakeholders.

WHAT YOU WILL LEARN:

Develop a thorough understanding of specific instructions needed from equipment suppliers. Understand the structure, procedures and checks required so that all systems and associated equipment are stored, inspected and maintained in a desired state leading to commissioning.

Attendees will learn how to create procedures and check lists reflecting the steps required to ready and monitor static and rotating equipment through all stages of a safe and efficient commissioning and start-up process.



COURSE OUTLINE:

Day 1:

Session 1: Introduction

Course Objectives:

- Where the Topic fits in
- Key Stages of Plant Commissioning
- Preparation and Planning
- Setting Priorities
- EPC – Owner interfacing
- Handover Rules Defined

Session 2: Preparation & Planning

- OEM Factory Machinery Tests
- Planning a successful Startup
- Incentives
- 16 Tasks to Assure a Successful Machinery Startup
- Documentation
- Training Requirements
- Role of SMEs (Subject Matter Experts)
- Spare Parts Requirements and Logistics

Session 3: Mechanical Completion & Integrity Checking

- Inspection Procedure
- Best Practices
- Concentration on Critical Important Equipment
- Equipment Foundation Integrity Checking

Session 4: Mechanical Completion & Integrity Checking (cont.)

- What to do before mechanical completion
- P&ID Verification
- Lubrication and Seal Systems for Turbomachinery
- Flushing Operations and Cleanness Verification

Day 2:

Session 1: Mechanical Completion & Integrity Checking (cont.)

- Piping and Equipment Supports
- Field Piping Inspection Procedure
- Small Bore Piping Review
- Removing and/or Activating Spring Hangers
- Tasks Prior to Machinery Commissioning
- Punch List Development

Session 2: Pre-Commissioning and Operational Testing

- Pump Piping Review
- Hydro testing
- Final Piping Reviews Prior to Commissioning
- Steam Blowing
- Pressure Testing

Session 3: Pre-Commissioning and Operational Testing (cont.)

- Cleaning and Flushing
- Machinery Alignment and Support Criteria Machinery Alignment Methods
- Alignment Verification

Session 4: Pre-Commissioning and Operational Testing

- Final Piping Checking Procedure
- Completeness Checks
- Machinery Startup Team Review Tasks
- Forms, Graphs, Check Lists and Procedures
- Pre-Commissioning Audit

Day 3:

Session 1: Pre-Commissioning and Operational Testing (cont.)

- Dynamic Testing
- Commissioning Utilities
- Electrical Systems – Motors
- Operational Testing
- Dry Runs and Hot Tests

Session 2: Operational Testing

- Pre-Commissioning Check Lists
- Pressure Testing and Purging
- Major Turbo-compressor Train Startup
- Coupling Up
- Run-Ins – Solo, Coupled
- Startup Check Lists
- Dynamic Testing of Turbomachinery

Session 3: Startup and Initial Operation

- Introducing Process Fluid
- Start-up and Initial Operation
- Machinery Surveillance and Monitoring
- Managing Outstanding Punch list Items

Session 4: Performance Tracking and Acceptance Tests and Post-Commissioning

- Surveillance and Monitoring (cont.)
- Troubleshooting
- Ramping up the Plant Throughput
- Performance Testing
- Acceptance Testing
- Commercial Significance of Plant Acceptance
- Adjustments, Modifications and Fault Correction
- Planning for Opportunistic Mini -Turnarounds

¹Original Equipment Manufacturer

²Computerized Maintenance Management System

TERMS FOR ATTENDING THE COURSE:

- University Engineering Degree (e.g. Mechanical, Chemical &..) is highly recommended.
- Sending the completed "Course Registration Form" by **10th May 2019**
- Knowledge or background in the field of "**Process Machinery**" is highly recommended.
- Formal language of the course is English.

COURSE FEE:

- Payment of Rials **50,000,000.00** to MAT Persian Group, **Account Number 810-652-6, Code 1080, Parsian Bank, Iran, Tehran by 10th May 2019.**
- The above price does not include 9%VAT.

IMPORTANT NOTICE:

- Payments are required with registration and must be received prior to the course to guarantee your place.
- The regular registration period ends on **10th May 2019** Afterward, late "Registration Fee" of **Rials 3,000,000.00** will be charged.
- A certificate of successful completion of the course will be awarded to participants who attend and complete all course sessions and successfully pass the final exam of the course.
- The registration payment includes: **Course Materials, Pre and Post Exam, Videos and Supplementary Documents.**

About Your Principal Course Leaders:



Mr. Fred K. Geitner P.Eng. M.S.M.E. is the Principal Engineer of PMES (Process Machinery Engineering Services). He has **over 50 years experience** in rotating/process machinery engineering for the petrochemical and related process industries. He is presently working as an

expert witness for rotating machinery and is advising on subjects related to process machinery (e.g. air compressors, steam turbines, etc.), reliability improvement and maintenance such as machinery failure analysis, specifications, technical bid analysis and machinery design audits. From 1993 to 2000, Mr. Fred K. Geitner worked for a major natural gas transmission company in Germany where he was in charge of machinery technology liaison between the German firm and pipeline companies in the newly independent states of the former Soviet Union. Before retiring from Exxon in 1992, after twenty years of service, Mr. Geitner's professional career included positions as Engineering Associate with Esso Chemical Canada and a three-year assignment as a lead machinery specialist with Exxon Chemical France. Prior to joining Exxon, Mr. Geitner worked for ten years for Cooper Industries, a major manufacturer of process machinery. There he held positions in field service engineering, design and manufacturing at various locations in Canada and the U.S. Mr. Geitner graduated from the Technical University of Berlin/Germany with an M.S. (Dipl. Eng.) degree in Engineering and did post-graduate studies at the University of Cincinnati, USA. Mr. Geitner has presented courses and seminars on design, operation and maintenance of process machinery and related equipment in Canada, the US, Europe, South America and the Middle East.

He is also a present member of the Society of Tribologists and Lubrication Engineers and has, together with Heinz Bloch co-authored a series of books on process machinery management and reliability engineering. The current list of his books includes:

- (1) Machinery Failure Analysis and Troubleshooting (Third Edition), by Heinz P. Bloch and Fred K. Geitner (Houston, Texas: Gulf Publishing Company).
- (2) Practical Machinery Management for Process Plants, Volume 1, 3rd Edition.
- (3) Practical Machinery Management for Process Plants, Volume 2, 3rd Edition
- (4) Practical Machinery Management for Process Plants, Volume 3, 2nd Edition:
- (5) Practical Machinery Management for Process Plants, Volume 4, 2nd Edition.
- (6) Machinery Component Maintenance and Repair
- (7) Process Equipment Maintenance and Repair
- (8) Process Plant Machinery
- (9) Process Plant Reliability

