



TRAINING COURSE ON

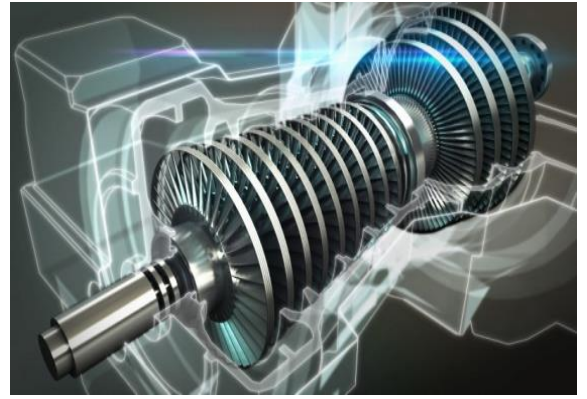
COMPRESSOR, TURBINE AND PUMP UNIT OPERATIONS AND TROUBLESHOOTING

TRƯỜNG ĐẠI HỌC DẦU KHÍ VIỆT NAM - PVU
TRUNG TÂM BỒI DƯỠNG NÂNG CAO - ATC

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TRAINING COURSE ON: COMPRESSOR, TURBINE AND PUMP UNIT OPERATIONS AND TROUBLESHOOTING

INTRODUCTION

The success of every company depends on each employee's understanding of the key business components. Employee training and development will unlock the companies' profitability and reliability. When people, processes, and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner. Training and development are an investment in future success - give yourself and your employees the keys to success. It is strategically important that your team understands the fundamentals of process unit operations concepts. This is the difference between being in the best quartile of operational ability and being in the last quartile. There is vast difference in the operational ability of operating companies and most benchmarking studies have confirmed this gap in operational abilities. The unit on stream time is an indication of operations training. A first quartile operating unit's on stream factor is greater than 97%. If the on stream factor is below 97% a review of operation training and development is warranted. If on stream factor or average years of operating experience is declining a review of operations training and development should be considered. Whether you have a team of new or seasoned employees, an introduction or review of these concepts is greatly beneficial in closing the gap if you are not in the best quartile or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in operational principles is the most effective way to obtain the desired results. Training and learning should be an ongoing continuous lifelong goal.

CONTENT

- 1. Introduction**
 - Overview of the Processing Industry
 - Safety for the Operation and Maintenance Groups
- 2. Introduction to Troubleshooting**
 - Typical Equipment Problems
 - Integration of Process, Equipment and People
 - Troubleshooting Techniques
 - Troubleshooting Tools
- 3. Pump Fundamentals**
 - Overview of Pump Rotating Equipment

- Pump History
- Bernoulli's Principle & the Venturi Effect
- Pump Curves
- Types of Pumps
- Centrifugal Pump Design
- Rotary Pump Design
- Positive Displacement Pumps
- Seal-less Pumps
- Design
 - NPSH
- Safe Commissioning of Pump Rotating Equipment
- Economics
 - System Hydraulics
- Preventative Maintenance
 - Bearing Lubrication
- Trouble Shooting
 - Vibration
 - Cavitation
- Maintenance Guidelines
 - Types of Mechanical Seals
 - Seal Installation
 - Seal Troubleshooting
 - Hydraulic Oil Systems
- Safety

4. Turbines Fundamentals

- Overview of Turbine Rotating Equipment
 - Steam Turbines
 - Single Flow Condensing
 - Double Flow Condensing
 - Automatic Extraction
 - Non Condensing
 - Speed Governors
 - Gas Turbines
- Design of impulse and reaction turbines
- Safe Commissioning of Turbine Rotating Equipment
- Economics
 - Steam Temperature
- Maintenance Guidelines
 - Types of Mechanical Seals
 - Seal Installation
 - Seal Troubleshooting
 - Bearing Lubrication
 - Vibration
- Preventative Maintenance
 - Bearing Lubrication
- Trouble Shooting
 - Vibration
 - Cavitation
- Maintenance Guidelines
 - Types of Mechanical Seals



- Seal Installation
- Seal Troubleshooting
- Hydraulic Oil Systems
- Safety
 - Overspeed trip
- 5. Compressor Fundamentals**
 - Overview of Compressor Rotating Equipment
 - Positive Displacement
 - Rotary o Centrifugal
 - Design
 - impulse and reaction turbines
 - Safe Commissioning of Turbine Rotating Equipment
 - Economics
 - Steam Temperature
 - Maintenance Guidelines
 - Types of Mechanical Seals
 - Seal Installation
 - Seal Troubleshooting
 - Bearing Lubrication
 - Vibration
 - Preventative Maintenance
 - Bearing Lubrication
 - Trouble Shooting
 - Vibration
 - Cavitation
 - Surge
 - Stonewall
 - Maintenance Guidelines
 - Types of Mechanical Seals
 - Seal Installation
 - Seal Troubleshooting
 - Hydraulic Oil Systems
 - Safety
 - Small Bore Piping
 - Compressor Check Valve Case Study

TIME AND VENUE

- Duration: 04 – 05 days
- Timing: Quarter 2/2022

METHOD OF TRAINING

- Online training using MSTeam

REGISTRATION

- Submit the registration form and send it to the Advanced Training Center by Fax / Email.



CONTACT

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