Projacs
an egis company
بروجاكس للتدريب والتطوير
Projacs Training and Development

# Natural Gas Processing

A Member of:
PROJACS ACADEMY

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## Introduction

This intensive 5-day course has been designed to benefit engineers and technicians who are involved in the operation and maintenance of oil & gas industry. It covers all the fundamentals of natural gas processing as well as the advanced techniques of maintenance planning & monitoring of the production facilities.

## Objectives

The aim of the course is:

- To provide gas and oil plants operators, supervisors, and technical staff with an understanding of different types of process operation troubleshooting.
- To give the participants a background review of oil and gas processing fundamentals that should be well known for process troubleshooting understanding
- To give the participants a background review of instrumentation fundamentals and process control loops that should be well known to identify process troubleshooting events and causes
- To give the participants different troubleshooting case studies and lessons learned through opened discussions

## Who Should Attend?

Engineers and technicians who are involved in operation, management and maintenance of gas production plants.

## Course Outline

***Day 1***

***Overview of Gas Plant Processing***

Roles of Gas Plants
Plant Processes
Field Operations and Inlet Receiving
Inlet Compression
Gas Treating
Dehydration
Outlet Compression
Liquids Processing.
Storage and Transportation
Liquefaction

***Day 2***
***Important Support Components***
Utilities
Process Control
Safety Systems
CRU operating procedures
Optimization of condensate & gas production
Jet pump vapor recovery technology

- Reciprocating Gas Compressors,
- Component Failures and Prevention,
- Reciprocating Compressor Horsepower Calculations,
- Multi-staging
- Compressor Efficiencies
- Troubleshooting Reciprocating Compressors Using Gas Calculations,
- Mechanical Seals,

**Day 3**
Maintenance Strategy

- Predictive Maintenance

Failure Analysis
*Condition Monitoring*

- *Critical machines in the different industrial sectors*
- *Causes of machine failure*

- *Basics of machine dynamics*
- *Vibration analysis & diagnosis*
- *Vibration measurement : sensors, measurement locations, ISO standard*

***Day 4***

Applying the Predictive Approach

- Surviving the Maintenance Shutdown
- The Shutdown Manager's - Pre-Shutdown Checklist
- Take Stock of Your Maintenance Storerooms
- Determining Spare Parts Requirements Using Repair Scenarios

Maintenance Strategy

- Shut down checklist
- Planning & Scheduling machine
- Oil Analysis
  - Viscosity Index & oil analysis

***Day 5***

*Instrumentation fundamentals and process control loops*

- Local monitoring instruments
- Process control terms
- Process control loops
- Distributed control system (DCS)
- Programmable logic control (PLC)
- PLC cause and effect matrix understanding

Process plant equipment troubleshooting

- Pump
- Expanders
- Separators
- Heat exchangers
- Pipelines
- Storage facilities

## Training Method

- Pre-assessment
- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- Power point presentation, LCD and flip chart
- Group activities and tests
- slides and handouts
- Post-assessment

## Program Support

This program is supported by interactive discussions, role-play, case studies and highlight the techniques available to the participants.

## Schedule

**The course agenda will be as follows**:

- Technical Session 08:30 – 10:00 am
- Coffee Break 10:00 – 10:15 am
- Technical Session 10:15 – 11:30 noon
- Coffee Break 11:30 – 11:45 am
- Technical Session 11:45 – 01:00 pm
- Lunch 01:00 – 02:00 pm
- Technical Session 02:00 - 03.45 pm

## Course Fees

$3,200 per participants

Special discounted rate for PDO $2,500 per participants