

Building Operational Excellence in the Processing Industry

Introduction

The success of every company depends of each employee's understanding of the business's key components. Employee training and development will unlock the companies' profitability and reliability.

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.

This seminar was designed to serve as a guide to building the operation and maintenance group's excellence in the processing industry. Understanding the fundamentals of process unit operations equipment will greatly improve your team's operational excellence and safety. The operation and maintenance groups are the process unit's first line of defence; the flare is the last line of defence.

Course Objectives

This seminar's goals are to provide an understanding of the fundamentals of process unit operational equipment in the processing industry. This seminar would be beneficial to those directly or indirectly involved in the processing industry. To those with experience in the processing industry, this seminar can reinforce their practical experience and broaden their data base. To those new in the processing industry this seminar can serve as a platform to build their data base of experience.

This seminar focuses on the core building blocks of the process unit equipment. The program will emphasise process unit equipment fundamentals, safe utilization of these fundamentals by operations and maintenance personnel, and equipment troubleshooting techniques.

Sectors covered include;

- 1) Furnaces,**
- 2) Boilers and Steam Systems,**
- 3) Steam Turbines, Pumps, and Compressors,**
- 4) Distillation,**
- 6) Piping and Heat Exchangers,**
- 7) Process Control Systems,**
- 8) Electrical Systems,**
- 9) Catalyst and Molecular Sieve Systems,**
- 10) Cooling Water Systems and Treatment,**
- 11) Process Utilities and**
- 12) Relief Valve and Flare Systems.**

Course Outline

Day One

Introduction

- **Overview of the Processing Industry**
- **Chemistry of the Processing Industry**
- **Safety for the Operation and Maintenance Groups**

Furnaces

- **Overview of Process Furnace**
- **Safe Commissioning of a Process Furnace**
- **Economics – Excess Air Control, Flame Pattern**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety**

Boilers and Steam Systems

- **Overview of Boilers and Steam Systems**
- **Safe Commissioning of Boilers and Steam Systems**
- **Economics – Excess Air Control, Demin Water and Condensate**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety**

Steam Turbines, Pumps and Compressors

- **Overview of Rotating Equipment**
- **Safe Commissioning of Rotating Equipment**
- **Economics – Steam Temperature, Preventative Maintenance**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety**

Day Two

Distillation

- **Overview of Distillation Equipment**
- **Safe Commissioning of Distillation Equipment**
- **Economics – Reflux Optimization, Reboiler Optimization, Tray Efficiency**
- **Trouble Shooting**
- **Maintenance Guidelines – Tray verses Packing**
- **Safety**

Piping and Heat Exchangers

- **Overview of Piping and Heat Exchanger Equipment**
- **Safe Commissioning of Piping and Heat Exchanger Equipment**
- **Economics – Heat Exchanger Monitoring**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety – Pressure Concerns**

Process Control Systems

- **Overview of Process Control Systems**
- **Safe Commissioning of Equipment utilizing Process Control Systems**
- **Economics – Process Optimization and Integration**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety**

Electrical Systems

- **Overview of Electrical Systems**
- **Safe Commissioning of Electrical Systems**
- **Economics – Lighting Guidelines**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety - wire temperature monitoring**

Day Three

Catalyst and Molecular Sieve Systems

- **Overview of Catalyst and Molecular Sieve Systems**
- **Safe Commissioning of Catalyst and Molecular Sieve Systems**
- **Economics – Life Evaluation**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety – temperature monitoring**

Cooling Water Systems and Treatment

- **Overview of Cooling Water Systems and Treatment**
- **Safe Commissioning of Cooling Water Systems**
- **Economics – Cost / Benefit Evaluations**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety – Water vapor to liquid ratios**

Process Utilities

- **Overview of Process Utilities**
- **Safe Commissioning of Process Utilities**
- **Economics – Cost / Benefit Evaluations**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety – Nitrogen Issues**

Relief Valve and Flare Systems

- **Overview of Relief Value and Flare Systems**
- **Safe Commissioning of Relief Valve and Flare Systems**
- **Economics – Evaluation of flare sweeps**
- **Trouble Shooting**
- **Maintenance Guidelines**
- **Safety – Temperature Issues**

Summary

Who Should Attend:

- **People who are making day to day decisions regarding operation, design, and economics of processing plants;**
 1. **1st Line Operations personnel,**
 2. **Operation Supervisors,**
 3. **1st Line Maintenance personnel,**
 4. **Maintenance Supervisors,**
 5. **Senior Plant Supervisors,**
 6. **Operations Engineers**
 7. **Process Support Engineers,**
 8. **Design Engineers,**
 9. **Cost Engineers.**

- **Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.**

- **Other professionals who desire a better understanding of subject matter**

What you can expect to gain:

- **The Process Unit Equipment Fundamentals – how each system functions from a hands on viewpoint**
- **Safe commissioning and utilization of process equipment**
- **Maintenance Guidelines**
- **Process furnace concepts and application**
- **Rotating equipment concepts and application**
- **Catalyst and mole sieves concepts and application**
- **Distillation concepts and troubleshooting**
- **Process control concepts and application**
- **Cooling water concepts and application**
- **Flare safety guidelines**