DEFINE
MANAGEMENT CONSULTANTS
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Training Title

Process Up-Set & Troubleshooting Training

Training Duration

5 days

Training Venue and Dates

Process Set-up & Troubleshooting		**5**		**21-25 February**		**$3,300**		**Abu Dhabi**
Process Up-Set & Troubleshooting		**5**		**19-23 September**		**$3,300**		**Abu Dhabi**

In any of the 5 star hotels. The exact venue will be informed soon.

Training Fees

- **3300 US$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch**

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

Training Objectives

To give an overview of the plant machinery and equipment where operators have lot of trouble shooting. exercises.

1. **To understand the definition of engineering problem solving.**
2. **Will come to know why engineering problem solving is required.**
3. **Tools and techniques – Practical experience**
4. **Will understand Process for successful engineering problem solving.**
5. **Principles and problems of process distillation, separation and refrigeration systems.**
6. **Development of theoretically correct working hypothesis.**
7. **Application to fractionation columns.**
8. **Application to kinetically processes (heat or mass transfer, drying, reaction).**

9. Application to unsteady state operations (start-ups, batch operations, upset conditions).
10. Application of techniques to practice problems and participant's actual problems.

Target Audience:

This course is designed for Operations Engineers, Process Engineers, Operators, Facility Engineers, Plant Engineers and Design Engineers who are working in the Plants.

Training Methodology:

Group discussions will be carried out on problems faced and failure management. Steam Temperature, Preventative Maintenance Trouble Shooting Maintenance Guidelines Safety will be discussed. This training program is lecture-based and customized to the needs of the audience, providing meaningful experience for personnel that work in petroleum plants. Daily sessions include formal presentation, prepared in the Power Point, interspersed with directed discussions and case study. In addition to formal lectures and discussions, the delegates will learn by active participation through the use of problem-solving exercises, group discussions, analysis of real-life case studies etc.

All attendees receive a course manual as a reference.

Course Outline:

Day 1 (Introduction)

A- Overview of the crude oil Processing Industry.
B- Crude oil Desalting.
C- Crude oil Atmospheric and Vacuum distillation
D- Heavy crude oil processing, cat cracking and Hydro Cracking
E- Gas Processing , dehydration and refrigeration system
F- Dew point depression , liquid and solid desiccant

Day 2:-

Troubleshooting & Problem Solving: Identification of Problems &Priorities; Resource Allocation & Teamwork; Data Collection & Solution Selection, Advanced Troubleshooting Techniques.

Vapor – liquid separation problems

- **A- Bases and types of separators**
- **B- Two and three phase separators**
- **C- High liquid level , Entrainment of vessels and slug catcher**
- **D- Troubleshooting**

Day 3:

Distillation

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

Day 4

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**

♦ **Economics–Excess Air Control, Demin Water and Condensate**

♦ **Trouble Shooting**

<u>Day 5:</u>

Piping , Heat Exchangers and rotating equpment

♦ **Overview of Piping and Heat Exchanger Equipment**

♦ **Economics – Heat Exchanger Monitoring**

♦ **Trouble Shooting**

- **Compressors**
  - **Types of compressors**
  - **Reciprocating compressors process considerations**
  - **Centrifugal compressors process considerations**
  - **Compressor Antis urge**

- **Pressure relief**
  - **Relief requirements**
  - **Type of devices**

Valve sizing
Installation

- **Valves, fittings and piping details**
  Valve types
  Chokes

Case Studies, Discussions & Last review will be carried out

At the end of the course, the delegates will be able to:

1. **Identify the up-set and problem situations in distillation, separation and refrigeration systems.**
2. **Identify the characteristics of the process used to carry-out a successful trouble-shooting activity.**
3. **Develop a structured approach to Troubleshooting and Problem Solving which uses a common terminology and shared understanding.**
4. **Analyze the problem-solving process and demonstrate the use of the troubleshooter's guidelines.**
5. **Develop problem solving, data gathering & interpersonal skills and be able to recognize the importance of these skills in troubleshooting process operations.**
6. **Practice the trouble-shooting skills in process industries.**

Case Studies for Gas dehydration using Liquid or Solid Desiccant

Last Day Review & Discussions will be carried out

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