1. Course Details:

Course Code : ICPE-017
Course Title : Pumps & Compressors Operations, Troubleshooting & Maintenance
Course Duration : 5 Days

2. Course Overview:

- Fluids and fluid movers such as pumps, compressors of various designs and applications, are encountered throughout chemical and process industries, including oil refineries, gas production facilities, power generation and other fields of engineering. As fluids can be in-process material in the form of liquid, gas or a mixture of both with solids, corresponding pumps and compressors sometimes must satisfy high demands of efficient transport of complex and difficult fluids.
- The progress in the design and application of pumps, compressors and turbines has been so rapid that currently, all limitations of pressure, capacity, temperature, and nature of fluids have disappeared. At the same time, this advance in construction and application has presented numerous problems: mechanical, hydraulic, operating, economic, etc…..

3. Learning Outcomes:

- This program will provide the skills and practical knowledge to identify the pumps and compressor in general service and the various maintenance methods plus the number of practical fault-finding techniques available. It will also cover the main problems associated with wear and tear and minimizing down times along with lubrication requirements.
- This program is designed to assist engineers and technicians in identifying the various pumps and compressors they will be expected to handle. It will detail how to conduct scheduled maintenance and how to replace parts and troubleshooting methods based on manufacturing and practical experiences.

4. Course Contents:

Pumps

Introduction:

- Types of pumps – centrifugal, positive displacement
- Characteristics Curves
- Duty point (design parameters)
- Operating parameters and duty Point
- Typical applications

- Constructional features

Operation:

- Important operating parameters – NPSH
- Power, Stable operating range
- Control & monitoring of important operating parameters
- Respective specific needs of centrifugal and positive displacement pumps
- Axillaries to Operation

    - Drive
    - Shaft seal
    - Seal cooling and flushing systems
    - Start up and shut down precautions

Maintenance:

- Daily and periodic maintenance schedules and records

Trouble shooting:

- Symptoms and remedial measures (some typical symptoms such as low delivery pressure, low flow rate, overloading of drive, higher energy consumption)

Compressors

Introduction:

- Types of compressors – positive displacement, centrifugal, axial, lubricated, oil free
- Typical applications
- Constructional features
- Characteristics curves

Operation:

- Normal/Design operating conditions,
- Important parameters – flow, speed, stable operating range
- Auxiliaries to operation

    1. Drive
    2. Shaft seal

3. Filter
4. Lubrication
5. Coolers
6. Speed control
7. Unloader
8. Start up and shut down precautions

Maintenance:

- Daily and periodic maintenance schedules and records

Troubleshooting:

- Symptoms and remedial measures (some typical symptoms such as vibration, overheating of compressor/drive, low delivery pressure, low flow of air/gas)

5. Our Methodology:

- Make coaching and monitoring innovative and using modern
- Media training also using on the go training by using interactive means and focusing on
- The exercises, practical applications and real situations study.
- Live delivery method, instructor-led training.
- Experienced consultant, trainers, and professional.
- Qualified trainer with high-level experience

6. Attendance Reports:

- Send daily attendance reports to trainingdep
- Send full attendance report to training dep. by the end of thecourse
- Attend 100 % from the course days also providedaily
- Issue attendance certificate for participant who attend minimum 80% from the course duration

7. Pre/Post Reports:

- Pre- assessment before starting training.
- Post assessment after finish training
- Full report for the deferent between Pre-& Post assessment

8. Who Should Attend?

- Engineers Technicians involved with maintenance programs and are responsible for day to day servicing and operational efficiency
- Plant and maintenance engineers, process engineers and maintenance managers
- Supervisors who are involved in pumps and compressor maintenance schedules