



PE017:

Operation of Process Equipment: *Fired Heaters, Heat Exchangers, Air Coolers, Piping, Pumps, Compressors and Process Control & Troubleshooting*

Training Description:

This intensive five-day course is designed to provide an understanding and skills in operation of process equipment and troubleshooting. The program is a good opportunity for participants to familiarize with practical techniques, useful criteria (including short cuts) for designing and troubleshooting process equipment commonly used in gas processing and petrochemical plants.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Calculate, evaluate and compile process data for the specification, design, selection and operation of process equipment
- ✓ Possess enhanced skills and knowledge in process engineering, including design methods, criteria, calculation procedures and short-cut techniques
- ✓ Perform the evaluation, diagnostic monitoring and troubleshooting of existing process equipment, including de-bottlenecking and revamping methods
- ✓ Evaluate technical proposals and prepare scoping cost estimates
- ✓ Prepare comprehensive process specification documents for bid packages

Training Designed for:

This course is intended for those who are involved with process engineering, instrumentation & control including Process Engineers, Mechanical & Equipment Engineers, Project Engineers and Maintenance Engineers, Operators and Technicians.

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

❖ Pre-Test

- Introduction
- Course overview
- Gas processing overview
- Process equipment categories
- Mechanical and safety aspects

❖ Process Control and Instrumentation

- Instrumentation types and selection
- Control valves sizing and selection
- Pressure relief devices and systems

DAY TWO:

❖ Piping

- Fluid flow principles
- Pressure loss categories
- Pipe properties
- Sizing methods and criteria
- Two-phase flow

❖ Conventional Separators

- Types and functions
- Sizing criteria and method
- Design considerations and internals
- Process operating problems

DAY THREE:

❖ Pumps

- Categories and types
- Performance characteristics
- Control systems
- Design criteria and parameters
- Pump selection guidelines
- Process operation troubleshooting

❖ Compressors

- Categories and types
- Compression process
- Characteristics and terminologies
- Design Criteria and parameters
- Compressor control methods
- Selection guidelines
- Drivers
- Process operation problems/troubleshooting

DAY FOUR:

❖ Fired Heaters

- Heater types
- Process applications
- Selection guidelines
- Process operating problems

❖ Heat Exchangers

- Heat exchanger types
- Process applications
- Heat transfer terms and equations
- Design criteria and parameters
- Fouling considerations
- Reboilers
- Calculation methods

- Selection guidelines
- Process operation problems/troubleshooting

DAY FIVE:

- ❖ Air Coolers
 - Air cooler types
 - Design and operating considerations
 - Process operating problems/troubleshooting
- ❖ Fractionation Columns
 - Fractionator types
 - Process design methods
 - Trays vs packing
 - Operating parameters
 - Process operating problems/troubleshooting
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

Aisha Relativo - Training & Career Development Manager

aisha@cmc-me.com / training@cmc-me.com

Tel.: +971 2 665 3945 or +971 2 643 6653 | Mob.: +971 52 2954615