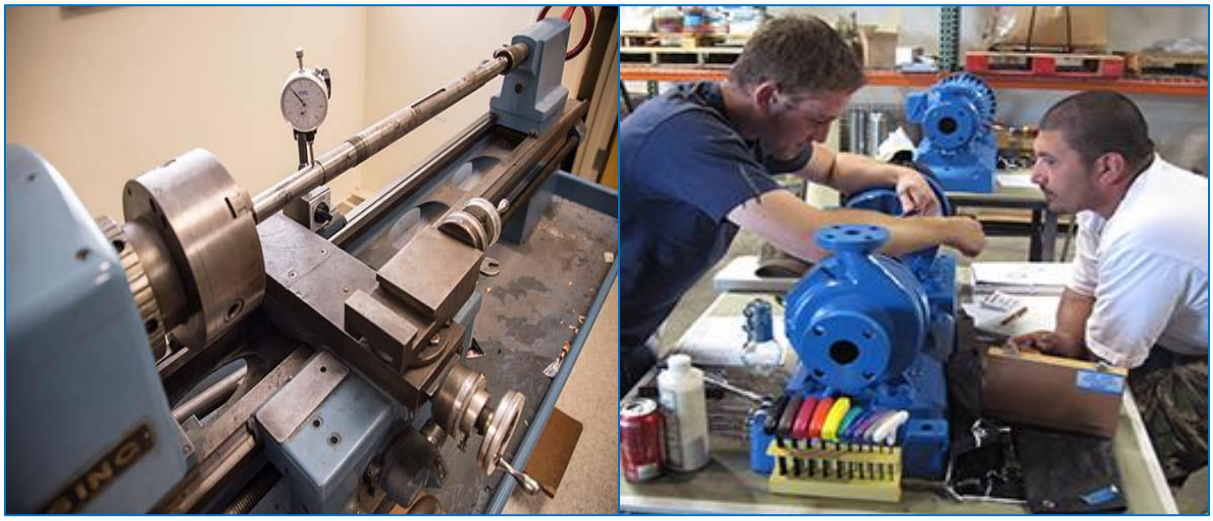
Tel No:+97126654546 | Fax No:+97126654182 | Email: training@cmc-me.com | www.cmc-me.com



MU217:
Pumps Operations & Maintenance

Tel No:+97126654546 | Fax No:+97126654182 | Email: training@cmc-me.com | www.cmc-me.com

Training Description:

Participants will leave this intensive training course with specific knowledge to eliminate mysterious pump failures, improve the running time and service life on a population of industrial pumps.

DISCOVER THE KEY ELEMENTS NECESSARY TO AVOID :

- ✓ Unnecessary capital costs
- ✓ Large long-term energy losses
- ✓ Reduced pump reliability
- ✓ Elevated maintenance costs
- ✓ Reduced operation time
- ✓ Poor hydraulic performance

Training Designed for:

This course is intended for Pump Operators, Artisans, Technicians, Instrumentation Technicians, Mechanical Foremen, Maintenance Engineers, Reliability Engineers, Mechanical Engineers, Operations Managers, Technical Managers and Process Engineers.

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:

FIVE DAYS:

- ❖ PRE-TEST
- ❖ Introduction
- ❖ Basic Pump Principles
  - How Pumps Work
  - Head vs. Pressure
  - Absolute and Gauge Pressures
  - Work & Efficiency
  - Flow & Head, Efficiency, Power
- ❖ NPSH and Cavitation
  - NPSH required
  - NPSH available
  - Vapor Pressure
  - Types of Cavitation
  - Effects & Prevention
- ❖ Troubleshooting
  - Why duties change
  - Identifying problem applications

- Where do your pumps operate
- Instrumentation (reading from gauges)
- Fault finding and Failure Analysis
- Interpreting the Evidence

❖ Case Studies
❖ Bearings
- Types & Services
- Lubrication
- Maintenance & Seals

❖ Pump Classification
- PD, Centrifugal types
- Impellers, Liquids
- ANSI / API
- Specific Speed

❖ Pump Curves
- Head, Eff. & Power
- NPSHr
- Family Curves
- The Affinity Laws
- Speed & Diameter
- Practical Application

❖ Case Studies
❖ System Curves
- Total Dynamic Head
- Elevation, Pressure & Losses
- Static head, friction head curve
- Pumps in Series & Parallel

❖ Pump Operation/Pump Reliability
- Definitions
- Operating away from BEP
- Energy savings, Increased MTBF
- Bearing and Seal Life
- Shaft deflection
- Maintenance Operation & Design

❖ Pump- Motor Alignment
- Types of Misalignment
- Alignment Techniques

❖ Case Studies
❖ Pump Packing
- Packing Procedures
- Failure & Leakage
- Components

❖ Mechanical Seals
- Components

- Single & Double
- Support Systems

❖ Case Studies
❖ 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