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

ME238:
Bearing Life Enhancement

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Training Description:

The Bearing Life Enhancement training is a five-day interactive course designed to provide participants with a comprehensive understanding of techniques and strategies to extend bearing service life and improve rotating equipment reliability. Bearings play a critical role in machinery performance and premature failures often result in costly downtime, maintenance expenses and safety risks.

This intensive training course focuses on proper selection, installation, lubrication, alignment, condition monitoring and reliability improvement practices that directly influence bearing lifespan. Participants will gain both theoretical knowledge and practical skills through case studies, hands-on inspection exercises and real industrial examples.

By the end of the course, participants will be able to identify factors affecting bearing life, implement best practices to reduce failure risk and apply reliability centered strategies to enhance equipment performance. The training strengthens technical competence, analytical thinking and long-term asset management capability.

Training Objectives:

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

- ✓ Understand bearing design and operating principles
- ✓ Identify key factors that influence bearing life
- ✓ Select appropriate bearings for specific applications
- ✓ Apply correct installation and handling procedures
- ✓ Optimize lubrication systems and practices
- ✓ Improve shaft alignment and load distribution
- ✓ Use condition monitoring techniques to detect early faults
- ✓ Reduce contamination and environmental risks
- ✓ Develop preventive maintenance strategies to extend bearing life

Training Designed for:

This training course is designed for maintenance engineers, reliability engineers, rotating equipment specialists, mechanical engineers, condition monitoring technicians and plant supervisors responsible for machinery performance and reliability. It is also suitable for technical professionals seeking to reduce downtime and improve equipment lifespan through improved bearing management.

Training Requirement:

"Hands 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:

FUNDAMENTALS OF BEARING DESIGN AND LIFE CALCULATION

- ❖ Understanding Bearing Performance
  - Overview of Bearing Life Enhancement
  - Bearing types and applications: ball, roller, tapered and spherical
  - Load ratings and life calculation concepts
  - Factors affecting bearing life: load, speed, temperature and environment
  - Common causes of premature bearing failure
  - **Practical exercise:** Evaluating bearing operating conditions

DAY TWO:

PROPER SELECTION AND INSTALLATION PRACTICES

- ❖ Building a Strong Foundation for Long Life
  - Bearing selection criteria based on application requirements
  - Correct storage and handling procedures
  - Installation methods and tools
  - Mounting and dismounting best practices
  - Shaft and housing fits and tolerances
  - **Workshop:** Demonstrating correct installation techniques

DAY THREE:

LUBRICATION AND CONTAMINATION CONTROL

- ❖ Protecting Bearings from Early Damage
  - Lubrication principles and lubricant selection
  - Grease and oil lubrication systems
  - Relubrication intervals and quantity optimization
  - Contamination sources and prevention methods
  - Seal selection and effectiveness
  - **Case study:** Improving lubrication practices to extend bearing life

DAY FOUR:

ALIGNMENT AND CONDITION MONITORING

- ❖ Ensuring Stable and Reliable Operation
  - Shaft alignment principles and methods
  - Effects of misalignment and imbalance on bearing life
  - Vibration analysis fundamentals for bearing health
  - Temperature monitoring and oil analysis techniques
  - Early fault detection and predictive maintenance
  - **Practical exercise:** Interpreting vibration data for bearing condition assessment

DAY FIVE:

RELIABILITY IMPROVEMENT AND CONTINUOUS OPTIMIZATION

- ❖ Maximizing Service Life and Reducing Downtime
  - Root cause prevention strategies
  - Reliability centered maintenance for bearings

- Performance tracking and maintenance KPIs
- Lifecycle cost analysis and optimization
- Developing a bearing life enhancement action plan
- **Final exercise:** Designing a comprehensive bearing improvement program

❖ 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