



EuroMaTech

Training Seminars & Conferences

An Intensive 5-Day Training Seminar On

Electrical Motor Installation and Protection

In Hazardous and Non-Hazardous Environments

28 Feb - 04 Mar 2021, Dubai
24 - 28 Oct 2021, Dubai



 View Details

www.euromatech.com

An ISO 9001:2015
and ISO 29993:2017
Certified Company

Electrical Motor Installation and Protection

In Hazardous and Non-Hazardous Environments

INTRODUCTION

This highly participative EuroMaTech training course is designed to provide participants with the skills to understand how Electric Motors and their associated Motor Protection and Control Systems are applied in industrial process plants in both Non-Hazardous and Hazardous Environments (*Oil & Gas, Mining and Minerals Processing and Heavy Industries*).

In this Electrical Motor Installation and Protection training course, participants will learn:

- The types of Electric Motors used in these Industries
- How Motors are Started and Controlled, including Variable Speed Drives
- The Various Classifications Types of Motors used in Hazardous Areas
- The importance of Selecting and Installing the correct Motor Bearings
- Lubrication Programs to ensure the Maximum Motor Life
- The importance utilizing the correct Motor Protection
- The use of Intelligent Motor Control and Motor Managers
- Effective Motor Maintenance, On Line and Off Line Diagnostics
- A Repair Program for Faulty Electric Motors

PRE-REQUISITE

The Electrical Motor Installation and Protection training course has strong electrical engineering content. Therefore, participants attending this training course should have a basic understanding of electric principals.

WHO SHOULD ATTEND?

This EuroMaTech training course is designed to provide a practical and detailed insight for personnel who are directly involved in the design, selection, installation, operation and maintenance of electric motors; professionals and semi-professionals who have an electrical background such as project engineers and electrical engineers and technicians.

It is specifically tailored to suit the following personnel who specify, operate and maintain the driven machinery (e.g. pumps, compressors, coolers, mills, etc.)

- Project Engineers
- Lead and Senior Design and Support Engineers
- Electrical Engineers and Designers – Design and Maintenance Operations
- Electrical Superintendents – Maintenance Operations

- Facilities Engineers
- Process and Chemical Engineers
- Mechanical Engineers
- Maintenance Technicians

The Electrical Motor Installation and Protection training course may also be of significant relevance to persons who require a detailed understanding of electrical motors, drives and control in their application in industry such as process and mechanical engineers, assuming they have a basic understanding of electrical principals.

PROGRAMME OBJECTIVES

- Undertake a detailed review the different types of electric motors available
- Define motor if class or not as per name plate codes
- Reading Motors Name plates and understand all items
- Explosion proof motors
- Area classification as per ATEX standard
- Learn the different starting and control methods used
- Understand the requirements for electric motors in hazardous areas
- Understand the types of motor protection required for different motor types
- Understand the terms “*Intelligent Motor Control*” and “*Motor Manager*”
- How they are used to control and automate many motor control functions
- Learn about comprehensive electric motor maintenance programmers

TRAINING METHODOLOGY

This EuroMaTech training course will combine presentations with interactive practical exercises, supported by video materials, activities and case studies. Delegates will be encouraged to participate actively in relating their particular protection requirements at their workplace.

There will be adequate time given for group discussion during and at the end of each session, including detailed case studies and anecdotes on based on the subject matter and the facilitator’s own experience in the field.

PROGRAMME SUMMARY

This EuroMaTech training course covers a comprehensive range of topics relating to Electric Motors and their protection as used in industry, ranging from small (*part kW*) to large (*many thousands of kW or MW*). It includes a detailed section on the type motors and protection suitable for use in Hazardous Environs such as Oil & Gas processing facilities.

PROGRAM OUTLINE

DAY 01

Fundamentals of Electric Motors

- Introduction to Electrical Motors, Basic Theory and Operation
- Types of Electric Motors
 - » DC
 - » AC Synchronous
 - » AC Asynchronous
 - » Other
- Commonly used Electric Motors in Industry
 - » Cast or Rotor
 - » Wound Rotor and Slipring
- Speed torque curves and motor starting considerations
- High Voltage Electric Motors
- Motor losses
- Motor selections based on load
- Special Motors (*Mill Drives, Gas Turbine Helper Motors etc.*)

DAY 02

Electric Motor Control and Hazardous Area Requirements

- Motor Control Methods and Techniques
 - » DOL
 - » Reduced Voltage Start by different techniques
 - » Variable Speed Drives
 - » PLC controlled
- Area classification as per ATEX standard
- EXd and EX ed Motors
- Motors Classified for use in Hazardous Areas
- Gland installation and cabling for EX motors

DAY 03

Electric Motor Bearings, Efficiency and Harmonics

- Motor Bearings – Design and Types, Plain, Roller and Sleeve, Lubrication.
- THD (*total harmonic distortion measurements*)
- Explain K factor
- Power quality improvement to increase efficiency
- Power factor correction different methods
- Energy Efficiency of Motors
- Harmonics in Motors from VSDs or other sources

DAY 04

Electric Motor Protection

- Motor Protection Requirements – General
- ANSI code for motor protection
- Using multifunction protection relay (*practical session using simulator*)
- Motor Stall, Acceleration and Running Thermal Limit Curves
- Motor Thermal Capacity and How it is Evaluated in Motor Protection Devices
- Motor Managers and Intelligent Motor Control

DAY 05

Electric Motor Maintenance and Repair

- Preventative Maintenance, Corrective Maintenance and Maintenance Planning
- On-Line Testing of Motors Using Current Signature Analysis can detect:
 - » Rotor defects
 - » Stator Problems
 - » Bearing Problems
 - » Air Gap Problems
- Off-line Static testing to evaluate:
 - » Stator Condition
 - » Rotor Health
 - » Air Gap Anomalies
 - » Power Circuit Faults
 - » Motor Insulation Health
- Predictive Maintenance using PD , infrared Camera
- Cable selection and voltage drop calculation
- FMEA and RBI
- Repair or Replacement Decisions, Motor Repair

IN-HOUSE TRAINING

EuroMaTech is capable of conducting this training programme exclusively for your delegates. Please e-mail us on inhouse@euromatech.ae for further information and/or to receive a comprehensive proposal.

QUALITY CERTIFICATIONS & ACCREDITATIONS

EuroMaTech is proud to be associated with the following accreditation bodies:



The PMI® Registered Education Provider logo is a registered mark of the Project Management Institute, Inc.

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✓	Date	Venue	Fee(\$)
	28 Feb - 04 Mar 2021	Dubai	US\$4,950
	24 - 28 Oct 2021	Dubai	US\$4,950

*This fee is inclusive of instruction materials, documentation, lunch, coffee/tea breaks & snack. All Fees are subject to 5% Value Added Tax (VAT).**

Your Details

Name (Mr/Ms):.....
Position:..... Organisation:.....
Address:.....
.....
City / Country:
Telephone / Fax:

Mode Of Payment

- Please find enclosed a cheque made payable to EuroMaTech
 Please invoice me
 Please invoice my company as follows:

Contact Name:
Company Name:
Address:.....

Documentation

High Quality material has been prepared by the Seminar Leader for distribution to delegates. In addition, a special note pad to facilitate note taking will be provided.

Certificates

A Certificate of Completion will be issued to those who attend & successfully complete the programme.

Schedule

Our Course timings commences at 08:30 and concludes at 14:00, followed by lunch on a daily basis.

Hotel Accommodation

EuroMaTech has negotiated special rates for a limited number of rooms in the hotel. Early registration will help to secure a room at the reduced rate.

Registration & Payment

Please complete the registration form on this page & return it to us indicating your preferred mode of payment. For Further Information, Contact Your Nearest EuroMaTech Office.

Cancellation Policy

Request for seminar cancellation must be made in writing & received at EuroMaTech three weeks prior to the seminar date. A U.S.\$250/- processing fee will be charged per delegate for each cancellation. Thereafter, we regret that we are unable to refund any fees due, although in such cases we would be happy to welcome a colleague who would substitute for you.

Disclaimer

EuroMaTech reserves the right to alter the content, location of the Seminar, or the identity of the speakers in case of events beyond our control.

***VAT Announcement:** The Government of UAE have introduced Value Added Tax (VAT) on goods and services from 01-January-2018. In compliance with the legislation issued by the UAE Government, we will be applying a 5% VAT on the fees for all our programs and services offered from January 2018 as applicable and stipulated in the FTA circulars.

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