PILZ
THE SPIRIT OF SAFETY

Certified Machinery Safety Expert (CMSE®) - The leading international qualification for machinery safety

What is CMSE?

CMSE is **the leading international qualification** for machinery safety with a **TÜV certificate**! In cooperation with the TÜV Nord, Pilz has developed a four-day training which will **gives you a 360° approach to Machinery Safety** and provides you guidance on how to implement the legal and statutory requirements pertaining to machinery. The aim of the CMSE® training course is to allow attendees to understand safety regulations and standards in reference to existing machinery, as well as to the design and construction of new machinery. The training provides guidance on how to implement the legal and statutory requirements pertaining to machinery. The 4-day course is divided into 5 modules which consist of presentations, workshops, questions and answers and attendee participation. The training concludes with the completion of an examination to ensure competence of the participants.

Topics include:

- Safety Legislation
- Machinery Standards and Regulations
- Risk Assessment
- Occupational Health and Safety
- Safety Systems and Electrical Safety
- Functional Safety: Safety Control, Pneumatic and Hydraulic Systems

Your Benefits at a Glance:

- Internationally recognized TÜV NORD certificate
- Gain an important competitive edge in the industry
- Benefit from the practical work, taught by experienced experts and certified by TÜV NORD
- Become the recognized expert in your own workplace for machinery safety
- Be part of a global expert community

- Detailed information can be found on our website with the following link: http://bit.ly/training-cmse
- 2023 schedule can be found on page 2.
- Please feel free to contact us in case of any question: canada@cmse.com

Training sessions in 2023

State	City	Date	Training and exam language
AB	Calgary	January 24th to 27th, 2023	English
BC	Langley	June 20th to 23rd, 2023	English
ON	Cambridge	April 25th to 28th, 2023	English
	Markham	May 16th to 19th, 2023	English
	Windsor	June 13th to 16th, 2023	English
	Sudbury	June 27th to 30th, 2023	English
	Mississauga	- April 11th to 14th, 2023 - September 12th to 15th, 2023 - November 21st to 24th, 2023	English
	London	October 24th to 28th, 2023	English
	Brockville or Ottawa	November 7th to 10th, 2023	English
	Cobourg	December 5th to 8th, 2023	English
QC	Laval	March 28th to 31st, 2023	English
	Québec	June 6th to 9th, 2023	French
	Laval	October 17th to 20th, 2023	French

***Please note**: these dates are subject to change further due to the COVID-19 pandemic if regional restrictions force us to do so. All participants will be keeping updated with the latest news.*

Knowledge Gives the Competitive Edge

The CMSE modules, while standardized for global application, will contain some variation to account for regional requirements e.g. CE Marking in Europe, OSHA in USA, etc.

Module 1

Introduction to Safety

- Fundamentals of safety
- Motivation for consideration of machinery safety
- Introduction to relevant safety legislation
- Responsibilities of key players and duty holders
- Introduction to Safety Management Systems

Module 2

Machinery Safety Legislation

- Legislation in relation to machinery and work equipment design, construction and maintenance with a regional focus
- Conformity requirements and procedures for placing machinery on the market, sale of machinery and putting machinery into service
- Equipment and workplace regulations
- Occupational Health and Safety considerations in relation to machinery, including ergonomics, noise, vibration and chemical agents

Module 3

Risk Assessment

- Risk assessment according to international standard ISO 12100 and best practice
- Methodologies for risk assessment based on real examples
- Step-by-step procedure for risk assessment completion
- Application and use of other relevant machine standards within the risk assessment process
- Introduction to risk reduction following risk assessment completion

Practical workshop for risk assessment with worked examples

Module 4

Mechanical Guarding

- International standards requirements relevant to machine guarding
- Guard definitions, types and application examples
- Analysis of safety distances according to ISO 13857

Safety Components

- Overview of safety components, requirements and application
- Specification and usage, advantages and disadvantages e.g. interlocking devices, light curtains, two hand control
- Complimentary protective measures e.g. emergency stop devices requirements
- Safety related control system applications

Electrical Safety

- Detailed review of international standard IEC 60204-1: Electrical equipment of machines
- Electrical design considerations – from incoming supply to proper verification
- Safe use and maintenance of electrically powered machines

Module 5

Functional Safety of Control Systems

- Detailed review of ISO 13849 standard requirements
- Functional Safety control systems specification, design and validation
- Determination of Performance Level (PL) and Safety Integrity Level (SIL) related to safety functions
- Architecture selection and practical examples of category realization
- Software lifecycle requirements and application
- Verification and Validation techniques
- Introduction to IEC 62061 standard
- Worked examples of PL and SIL validations

Functional Safety of Pneumatic and Hydraulic Systems

- Requirements from ISO 4413 (Hydraulic) and ISO 4414 (Pneumatic) standards
- Measures required implementing hydraulic and pneumatic systems safely
- Considerations for hydraulic and pneumatic components
- Design of safety related parts of fluid control systems in accordance with ISO 13849-1
- Worked examples of hydraulic and pneumatic safety system

Functional Safety workshop with worked examples

Distributed by

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