tec.nicum academy

More questions than answers?
Become a recognised expert for machine safety!

mce . expert
Machinery CE Expert

Qualification as a "Machinery CE Expert"

Expert for machine safety in only four days

The tec.nicum academy has added a new qualification offer to its programme: In a four-day seminar, participants can qualify as "Machinery CE Expert®" (mce.expert). Based on decades of experience, Schmersal has developed this seminar and its contents and had them certified by TÜV Rheinland. The course conveys in a compact form all the knowledge required to implement a CE conformity assessment procedure for machines and plants with all the relevant sub-steps. In this compactness and with this extensive knowledge transfer, the seminar in this form is almost unique on the market.

Upon successful completion, participants can prove their acquired qualification as an expert in machine safety by means of a certificate issued by TÜV Rheinland®.
You are entitled to use the title "Machinery CE Expert® with TÜV Rheinland® certified qualification". This qualification is internationally recognised.

In the online certificate database "Certipedia", TÜV Rheinland® provides information on all tested product features, services, companies, systems and personnel certifications (www.certipedia.com). The description of the seminar "Machinery CE Expert®" as well as the individual identification number of each graduate can be viewed and verified in the "Certipedia".

The participation costs for the course amount to 2,900 euros including the fees for the examination conducted by TÜV Rheinland®.

Further information and registration at:
www.tecnicum.com/mce-expert

Seminar contents and imparted competences of the mce.expert®

Training day 1
- Introduction to product safety legislation
- Machinery Directive 2006/42/EG
- General principles and terms
- Requirements for "partly completed machinery”
- Technical documentation, EC declaration of conformity, CE marking
- Outlook and current developments in machine safety
- Conformity of production lines and large plants
- Carrying out the risk assessment in accordance with EN ISO 12100
- Fundamental health and safety requirements
- Definition of the term: "state of the art”

Objectives and competences Day 1:
At the end of this module, participants will be able to clearly delineate the scope of the Machinery Directive (MRL) and its associated standards.
They are familiar with the essential terminology and structures of the MRL and the associated standards. Furthermore, they know the basic structure of a risk assessment according to EN ISO 12100.

Training day 2
- Mechanical hazards
- Hazards due to materials and substances
- Ergonomic requirements
- Fire and explosion protection on machines
- Further hazards
- Danger due to mobility and lifting operations
- Requirements for special machine types
- Requirements for the maintenance of machines
- Information, warnings and markings on machines
- Requirements for the operating or assembly instructions

Objectives and competences Day 2:
At the end of this module, the participants will be familiar with various hazards of different origins which, according to the Machinery Directive, must be assessed as part of a risk assessment in accordance with EN ISO 12100. In addition, they know basic requirements from the areas of maintenance and servicing as well as from the area of operating and assembly instructions.

Training day 3
- Pneumatic and hydraulic hazards
- Noise and vibration hazards
- Radiation hazards
- Electrical hazards
- Requirements for the electrical equipment of machines
- Requirements for control devices
- Safety guards against reaching danger points

Objectives and competences Day 3:
At the end of this module, the participants will be familiar with various hazards of different origins which, according to the Machinery Directive, must be assessed as part of a risk assessment in accordance with EN ISO 12100. In addition, they know the basic requirements for electrical equipment and control devices of machines. They are also introduced to the systematics of fixed and movable safety guards and can distinguish between them.

Training day 4
- Introduction: "Functional safety of machinery"
- EN ISO 13849-1: Safety-related parts of control systems – "Verification"
- Terms and definitions, general design principles
- Determination of the Performance Level (PL)
- Calculation of safety functions
- EN ISO 13849-2: Safety-related parts of control systems – "Validation"
- Validation process
- Validation through analysis / testing

Objectives and competences Day 4:
At the end of this module, the participants are familiar with the essential terminology of functional safety according to 13849-1 and -2. They know the scope of the standard and the structures stored in the standard. Furthermore, they can classify and evaluate the area of functional safety in the overall context of CE marking according to the Machinery Directive.

mce.expert
Machinery CE Expert

excellence in safety

Functional machine safety is a complex matter which involves complying with a range of standards and directives. tec.nicum offers all machine manufacturers, operators and distributors a completely product and manufacturer-neutral consultancy on all currently relevant statutory regulations and supports them in ensuring their machines and workplaces are designed to comply with the relevant standards.

tec.nicum services cover four areas, which can be obtained as individual modules or as complete packages:

- **tec.nicum academy – Learning**
- **tec.nicum consulting – Consultancy services**
- **tec.nicum engineering – Design engineering of safety solutions**
- **tec.nicum integration – Practical implementation**

Experts at tec.nicum advise and support customers and clients with training, on-site consultation, documentation and planning and implementation, such as the installation of protective equipment and safety systems.

tec.nicum is the Schmersal Group's service division and comprises a global advice network of TÜV Rheinland-certified Functional Safety Engineers and Machinery CE Experts. Services can be called upon around the world. tec.nicum's core philosophy is to offer advice that is independent of manufacturers and as objective as possible.

We strive to develop the best possible safety-related solution for each individual application, to implement it and completely safeguard its intended use – always in line with our commitment **"excellence in safety – we care!"**

- Seminars and training
- In-house training
- Customer-specific workshops
- Demonstration events
- Symposia

- Safety analysis of machines and production lines
- Conformity assessment and verification
- Risk assessments
- Risk assessments
- Technical documentation

- Technical project planning
- Validation of safety functions
- Measurements and tests
- Modernisation of machines
- Safety controller programming

- Conversion / Retrofitting
- Installation of
  - safety guards
  - safety fences
- Integration of safety functions
- Maintenance and service

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