



Training for functional safety of communication, signaling and processing systems used in railway applications

Standards:

- EN 50126 (IEC 62278): Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS)
- EN 50129 (IEC 62425): Safety related electronic systems for signaling
- EN 50128 (IEC 62279): Software for railway control and protection systems
- EN 50159: Safety-related communication in transmission systems

Day 1: EN 50126 (IEC 62278) - RAMS	Day 2: EN 50129 / IEC 62425	Day 3: EN 50128 / IEC 62279
<ul style="list-style-type: none"> • Overview: European directives, • understanding standardization, • standards in the railway signaling technology • Elements of RAMS and affecting factors • Risk / Risk Analysis • Safety Integrity • Life Cycle Model 	<ul style="list-style-type: none"> • Process of risk and hazard control • Safety integrity levels • Quality Management • Safety Management • Safety demonstration • Identification of safety requirements • Technical and functional safety • Basic methods (FMEA, FTA, Markov models) 	<ul style="list-style-type: none"> • Definitions • Software safety requirement levels (SSAS) • Personnel and responsibilities • Life Cycle Model • Use of COTS software • Requirements of the phases (sections) • Verification / Validation • Techniques / measures • Application Data <p>EN 50159</p> <ul style="list-style-type: none"> • Safety transmission system • reference architecture • Overview of the threats • Overview of the necessary steps to control • Calculation of the hazard rate of the transmission channel
Day 4: Examination:		



- Test (3h) for Functional Safety Certified Engineer / Professional for the Railway Industry
- Certificate of attendance states EN 50126 (IEC 62278), EN 50129 (IEC 62425), EN 50128 (IEC 62279) and EN 50159
- Condition for the Functional Safety Engineer/Professional examination is the participation in all training days.

Qualification levels

Level 1: Leading to title: “Functional Safety Engineer”

- Proof of project experience is not required
- It is recommended to participate to the 4 days training
- Multiple choice questions

Level 2: Leading to title: “Functional Safety Professional”

- Requirements for admission to the course:
- 6 years of industry experience in Functional Safety Technology
- Evidence of participation in 2 Functional Safety projects
- Multiple choice and open questions

Tentative trainings date: April 28-May 01, 2020

Conditions

- Maximum of 20 participants
- Last day to confirm the training to the trainers: March 01, 2020
- Training will take place at: TÜV SÜD Canada | 4479 Autoroute 440 O, Laval, Quebec, H7P 4W6, CANADA, Office: (905) 883-7305/7308
- Training will be performed by one USA based expert of TÜV SÜD
- Training material will be provided electronically as PDF-File. The material is in English language.