EN50128/EN50567 - SAFETY CRITICAL SOFTWARE IN RAIL (SCSR)

Key Learning Objectives

- Demonstrate a sound understanding of the principles and language of Safety Critical Software
- Appreciate software risk in the context of railway design and safety management
- Describe how software design and the software safety lifecycle interact and influence each other
- Appreciate how current best practice in software safety standards and in particular latest EN50128 and EN50567
- Understand the complexity of railway accidents involving software failures.
- Understand the need for a risk-based system engineering lifecycle approach to enable built-in safety, value and performance
- Understand how to review case studies to understand the potential for things to go wrong on the railway
- The demonstration of SFAIRP and compliance in regard to software.
- Identify and mitigate Security issues from Cyber Threats

Any member of staff – decision makers, project managers, line managers, engineers, designers and others – involved with changes to the railway need an understanding of the latest best practice. The course provides a structured and robust approach to developing and testing complex railway projects safely that is aligned with the LATEST CENELEC standard EN50128:2011 and EN50567:2xx for rolling stock.

The course content is mapped to:
- Industry standard competencies, skills and evidence requirements relevant to rail safety work (see our website for details)
- Industry regulations
- National and international standards

Information is interspersed with practical exercises. There is a short multiple-choice examination at the end to assess the identified learning outcomes.

ABOUT THE COURSE

The opening module provides background to software lifecycle and the standards and their application in the railway drawing upon best practice. The next modules introduce a number of incidents where software failures resulted in incidents. The next modules go into depth regarding the content, aims and requirements for developing software for the railway in accordance with EN50128 for all SIL levels.

WHO SHOULD ATTEND

Any member of staff – decision makers, project managers, line managers, engineers, designers and others – involved with changes to the railway need an understanding of the latest best practice. The course provides a structured and robust approach to developing and testing complex railway projects safely that is aligned with the LATEST CENELEC standard EN50128:2011 and EN50567:2xx for rolling stock.

Level: Fundamental Recommended Pre-requisites
Participants should have a general understanding of engineering and project management principles and practice.

WHAT OUR CLIENTS SAY

“Nice overview presented. Howard brought a lot of technical experience with him.”
Principal, Shakti Corp P/L

“Very knowledgeable with significant and relevant experience. Approachable and gave excellent examples of practical application.”
Manager Rollingstock Engineering, Public Transport Services

RELATED COURSES YOU MAY BE INTERESTED IN ATTENDING:

- Safe Earthing & Bonding in Rail - Face-to-Face Training
  Click here to learn more

- Rail Engineering and Design Safety Management (EDSM) - Online Course
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November - December 2020
6 Modules | Over 6 Weeks | 9 November - 18 December 2020

**COURSE OUTLINE**

**MODULE 1 - WEEK OF 9TH NOVEMBER**
- Scope of EN50128 and EN50567
- Software Safety Route Map - Relationship between generic system development and Application development
- Definitions as applicable to SW safety

**MODULE 2 - WEEK OF 16TH NOVEMBER**
- Case studies of accidents related to software failures.
- Learning from the mistakes of others:
  - Accident case study: Detailed case study caused by software errors and inadequate EDSM

**MODULE 3 - WEEK OF 23RD NOVEMBER**
- Assigning SW Safety Integrity Level (SIL) using general process described in EN50126
- Competence and Responsibilities of personnel carrying out SW Safety activities.
- Level of independence v/s SIL for SW Design/Implementation SW verification/validation.

**MODULE 4 - WEEK OF 30TH NOVEMBER**
- SW Requirement Specification - Required properties
- SW Architecture Techniques/Methods v/s SIL
- SW design and Implementation - Techniques/Methods v/s SIL

**MODULE 5 - WEEK OF 7TH DECEMBER**
- Techniques used in building Safety critical SW (As given in Annex B of the standard)
- Certification requirement of Tools used in SW development/Testing
- SW verification/Testing Techniques/Methods Vs SIL

**MODULE 6 - WEEK OF 14TH DECEMBER**
- SW / HW Integration
- SW Validation Techniques/Methods v/s SIL
- SW Assessment - SW assessment Report
- SW Quality Assurance
- SW Maintenance
- Systems Configured by Application Data
- New Material – Security from Cyber Threats in software systems

**EXPERT COURSE INSTRUCTORS**

**Dr Howard Parkinson**
- His project positions at senior levels have included systems assurance manager, senior project manager, lead safety assessor, and head of systems engineering and safety. He has had experience in metro, tram and heavy rail (conventional and high speed) in UK, Australia and other countries.
- Howard has expertise in systems engineering, compliance, safety / notified body assessment, safety and reliability engineering, the latest safety standards, European interoperability and UK legislation.
- Howard holds a doctorate from the department of mechanical and aeronautical engineering at the University of Manchester and a postgraduate certificate in education. He is a registered chartered engineer in the United Kingdom, a fellow of the Institution of Mechanical Engineers (FIMechE), and a member of the Institution of Railway Signal Engineers (MIRSE).

**Clive Osman**
- Clive is a rail systems engineer and consultant with 36 years of systems development and deployment experience including 27 years in UK and international metro, mainline and high speed rail projects. Experience covers command and control system development, signalling control system delivery, re-signalling scheme development and delivery, metro automation, engineering process development, engineering controls and engineering assurance management.
- Clive has a practical and theoretical understanding of railway system integration and have applied UK and international standards to the management of railway system integration activities across the whole lifecycle from concept development through to handover to operations.
- He is a capable system design manager and rail system integrator with a record of successfully applying systems engineering principles to design management, rail system integration and interfaces on major projects. Good working knowledge of all systems engineering disciplines and has held system architecture, interfaces, configuration management, requirements management and safety engineering posts.

**BOOKING OPTIONS**
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<th>Course Code</th>
<th>Location</th>
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<td>All 6 Modules + 3 Interactive Sessions</td>
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