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# EN50128 & EN50657 - Safety Critical Software in Rail

BLENDDED LEARNING/ONLINE PROGRAM 6 Self-Paced Modules + 3 Live Interactive Sessions

24 June - 2 August 2024 | 28 October - 6 December 2024



Online Program

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# Course Information

## 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 EN50657
- 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
- Understand the complexity of railway accidents involving software failures
- The demonstration of SFAIRP and compliance in regard to software
- Identify and mitigate Security issues from cyberthreats

## About the Course

The Safety Critical Software in Rail certification course is a blended training programme providing software developers, engineers, testers, managers and others involved in safety-related projects with a detailed understanding of the fundamentals of safety critical software development and testing. This course is supported by a competency-based structure.

The opening module provides background to software lifecycle, 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 succeeding modules go into depth regarding the content, aims and requirements for developing software for the railway in accordance with EN50128 for all SIL levels.

### The course content is mapped to:

- Industry standard competencies, skills and evidence requirements relevant to rail safety work
- 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.

## Who Will Benefit

Any member of staff – decision makers, project managers, line managers, engineers, designers and others – who want to know what is safety critical software in rail and are 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 EN50657:2xx for rolling stock.

## Fundamental Level Recommended Prerequisites

Participants should have a general understanding of engineering and project management principles and practices.



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



# Meet Your Course Director



## Howard Parkinson

Howard is a chartered engineer with over 20 years of experience in the international railway industry, more recently as an independent consultant, researcher and trainer. He has experience in signaling, rolling stock, infrastructure and railway systems projects at a senior level and has just finished an assignment in Australia working on systems integration for automatic train protection.

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).

Howard has expertise in systems engineering, compliance, safety /notified body assessment, safety and reliability engineering, the latest safety standards, European interoperability and UK legislation.

His current research interests include safety engineering in the railway, accident investigation and systems engineering. Howard has been deployed internationally in countries including: Australia, Korea, Germany, The Netherlands, UK, Croatia, Saudi Arabia, Canada and China. In addition to his consulting and research work, Howard designs, develops and delivers training to industry in the areas of engineering, safety and risk management.

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) including the Australasian branch.

## Course Outline

### MODULE 1

- Scope of EN50128 and EN50657
- Software Safety Route Map- Relationship between generic system development and application development
- Definitions as applicable to SW safety

### MODULE 2

- 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

- Assigning SW Safety Integrity Level (SIL) using general process described in EN 50126
- 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

- SW Requirement Specification – Required properties
- SW Architecture Techniques / Methods v/s SIL
- SW design and Implementation – Techniques / Methods v/s SIL

### MODULE 5

- 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

- 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 cyberthreats in software systems



*“Nice overview presented. Howard brought a lot of technical experience with him.”*

**Principal, Shakti Corp P/L**



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## Easy Ways to Register



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## EN50128 & EN50657 - Safety Critical Software in Rail

Course Code	Location/ Format	Course Dates	Standard Price		<b>Great Savings:</b> When you book <b>4 or more</b> participants! <b>Call us</b> today on <b>+61 (2) 9080 4399</b> or email <b>training@informa.com.au</b> to take advantage of the discount offer.
P24GO110N	Online Program	24 June - 2 August 2024	\$2,695.00 + \$269.50 GST	<b>\$2,964.50</b>	
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## ABOUT INFORMA CONNECT ACADEMY

**Informa Connect**

# Academy

**Informa Connect Academy** is a premier provider of global education and training solutions that caters to a diverse range of professionals, industries, and educational partners. We are dedicated to promoting lifelong learning and are committed to offering learners expert guidance, training, and resources to help them stay competitive in a rapidly changing world.

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- 3. On-site training** is a cost effective way to train your people and achieve your defined outcomes.

Speak with **Sushil Kunwar** on **+61 (2) 9080 4370** to discuss your customised learning solution, or email [inhouse@informa.com.au](mailto:inhouse@informa.com.au)



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