



RAILWAY CENELEC
EN50126/8/9

SYSTEMS SAFETY TRAINING

CENELEC EN50126/8/9 2 DAY SEMINAR

Rail Systems Engineering Limited

2015

Introduction

Rail Systems Engineering Limited offer a two day workshop style seminar for engineers, managers and decision makers to share in-depth lessons on CENELEC EN50126 EN50128 and EN50129 to enable them to make better informed decisions around the standards and their application in railway safety and reliability.

A good knowledge of these standards is now required for engineers and decision makers as these standards have defined a probabilistic approach into railway safety engineering and operation as part of a wider driver towards cross-acceptance throughout Europe and are quoted in the Technical Specifications for Interoperability.

Course Director

Dr Howard Parkinson

Howard is a chartered engineer with 20+ years' experience in the international railway industry as an independent consultant, researcher & training.



Minimising costs, maximising benefits

Our CENELEC training provides a complete overview of the most important European standards with a well structured presentation and frequent discussion sessions to ensure that attendees get the most value from participating.



Railway Safety and Certification



About the Course

The CENELEC standards for railway safety and dependability mainly comprise the following three standards.

EN 50126 / IEC 62278 (Railway Applications - The Specification And Demonstration Of Reliability, Availability, Maintainability and Safety (RAMS));

EN 50128 / IEC 62279 (Railway Applications - Communications, Signalling And Processing Systems - Software For Railway Control And Protection Systems); and

EN 50129 (Railway Applications - Communication, Signalling And Processing Systems - Safety Related Electronic Systems For Signalling)

Course Objectives

This training has primarily been compiled to provide a good foundation of knowledge of the basic terms and principles of the CENELEC standards EN50126/8/9. It provides an in depth introduction for engineers, managers and decision makers who need to have a good grasp of the concepts and philosophies of the standards and their application in the railway industry.

It can be used for a refresher by those who are already familiar with safety standards, and also for people who have experience in other industries and are familiar with IEC 61508 for example from outside the railway domain..

Howard has experience in signalling, 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. Howard's project work has included systems assurance manager, senior project manager, lead safety assessor, and head of systems engineering and safety in metro, tram and heavy rail (conventional and high speed).



Who Will Benefit?

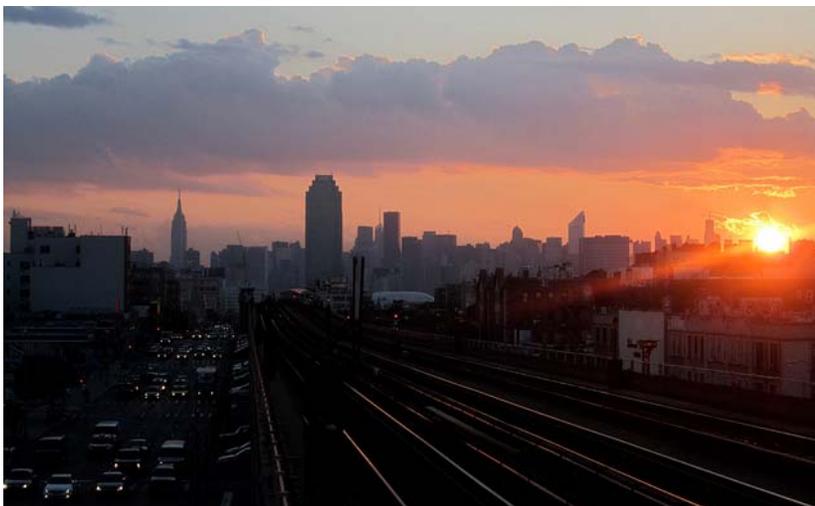
All members of staff – decision makers, project managers, line managers, engineers, operators, designers and others – involved with operations, construction or engineering changes to the railway that need an understanding of the latest international practice in certification, safety assessment and audit.

The course provides a structured and robust approach to safety assessment / audit skills and techniques and their application in rail.



The delegates will take away a good understanding of the standard's content and application enabling them to make more informed decisions and to have enough understanding to be able to begin optimising their organisations implementation of the standards without undue waste and effort. There will be the opportunity to identify means by which the techniques taught can lean to a safer and more efficient railway system.

The course has been fitted into a 2 day period. This is only achievable due to the trainer's knowledge or training principles, experience of delivering training and a deep knowledge of the standards and the railway.



Recommended Pre-requisites:

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

2 Day Course Outline

Day 1

CENELEC Standards Overview

CENELEC and the structure of the organisation and its management.

The role of the European Railway Agency and the safety directives

New Approach of the European Union and the significance of standards for competition within the EU

How to apply CENELEC standards

What does the safety as defined by CENELEC mean and differ from safety definitions?

The Significance of the CENELEC Standards and how they relate to European legislation.

Overview of EN50126

What is meant by RAMS(S), RAM and safety management?

The Safety Management system for railway undertakings and the relationship with CENELEC standards

Quality Management

The relationships between EN50126, EN50128 and EN50129.

Responsibility for safety

Safety requirements

Overview of EN50126

Hardware versus software

Random and systematic failure

Day 2

What is functional safety?

Functional Safety: The general principles (according to CENELEC)

The Safety Case

The independence of the roles involved

The safety lifecycle model

Risk analysis

Tools employed e.g. HAZOP, FMECA, FRACAS, FTA, Markov etc.

Tolerable Hazard Rates and SIL determination /allocation

Differentiation: Verification versus Validation

Independent safety assessment

Safety Acceptance and Approval

Cross Acceptance

Overview EN50128

Software Life Cycle and overview of the software Development Phases:

Software safety requirements

Software Planning and Quality Assurance

Software Safety Integrity Levels

Practical examples of the application of EN50126/8/9 to product development.

Practical examples of the application of EN50126/8/9 to application projects.

Examples of Safety cases including safety management, quality management and technical safety cases.

Examples of Independent Safety Assessment

Limitations of the approach and suggestions for optimising the approach

Concluding Remarks



About us

We are experienced, highly qualified, and discreet engineering professionals, with excellent references and a broad range of experience specialising in railway training.

We specialise in Safety, Reliability and Systems Engineering Training in the Railway Industry. We are truly international company being currently active in various countries includ-

RailSystems Engineering Limited for all your rail training needs

Contact Us

Give us a call for more information about our services and products

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