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Academy



Fundamentals of Railway Human Factors & Error Management

7 MODULES | 7-WEEK ONLINE COURSE

29 April - 14 June 2024

30 September - 15 November 2024



Online Program

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Course Information

Key Learning Objectives

- Understand the evolution of human factors in rail, its current scope and how it may contribute to addressing future safety challenges in modern railway systems
- Understand human error within the context of significant rail safety incident investigations
- Incorporate practical proactive error management strategies contextualised to rail operations
- Address human performance limitations that may impact effective decision-making and increase the probability of error occurrence
- Identify social and group influences that may shape human performance
- Adopt a systematic human factors analysis method for incident investigations to better identify errors and error producing conditions

Who Will Benefit

This railway management course is designed for those individuals seeking a comprehensive understanding of applied rail human factors. Expected participants include:

- Rail Operations and Engineering Senior Managers
- Team Leaders and Supervisors
- Human Resource Managers
- Rail Safety and WHS Managers, Investigators and Auditors
- Quality, risk, compliance and assurance managers

About the Course

Rail remains one of the safest forms of land transport, with road transport generating almost 14 times more accident costs than rail. While rail imposes fewer costs on the community in terms of accidents, congestion and emissions than other surface transport modes, the cost of rail accidents in 1999 was estimated at AUD\$133 million according to the Australian Bureau of Transport and Regional Economics (BTRE).

Over 20 years since this BTRE figure was published, and despite the highly protected and technological nature of the rail industry, human performance limitations at all levels of the rail industry remain the greatest challenge to further improving safety and reducing rail accident costs and impacts. The consequences of errors in the rail industry can be disastrous and the subject of public outrage, exhaustive inquiries and drawn-out legal action.

However, the underlying reasons for human error are the most commonly misunderstood and poorly analysed issue in rail safety. While human error is widely recognised as a problem, management often engages in learned helplessness; nothing can be done to prevent human failings as accident causes. Some community sectors are also quick to attribute rail accidents to human errors, without taking the opportunity to assess human error within the context of the organisation and wider rail system.

This 7-week Fundamentals of Railway Human Factors and Error Management online program will provide participants with a good understanding of the key factors that influence human error within the rail industry and practical strategies for making systems more error tolerant. Upon completion of this railway safety course, participants have the option of completing a further 4 weeks for the Advanced Railway Human Factors and Error Management program.

Meet Your Course Director



Dr Graham Edkins

Organisational Psychologist Dr Graham Edkins is considered one of Australia's leading Safety Management and Human Factors experts and is regularly retained as an independent safety investigator and human factors expert witness for various civil and criminal matters.

As a former Transport Safety Investigator with the ATSB, Manager Human Factors for Qantas Airways, Executive Director of Public Transport Safety Victoria, and Group General Manager for CASA, he brings a wealth of experience and detailed knowledge of contemporary safety regulation, major event investigation and human error management practices.

Dr Edkins has represented both the Victorian and Commonwealth Governments on a number of national forums, including the Standing Committee on Transport (SCOT) Rail Group, Vice Chairman, International Air Transport Association (IATA), Human Factors Working Group, Chair National Rail Safety Regulators Panel and the National Steering Committee for the development of National Rail Model Safety Legislation.

He has successfully designed and delivered customised rail safety investigation and human factors management training programs globally to a variety of public and private sector organisations and cultures.

Course Outline

MODULE 1:

INTRODUCTION TO HUMAN FACTORS IN RAIL

- Human factors in context
- Human factors: Past, present and future
- The human factors contribution to significant rail safety accidents
- A simple human factors model

Case study: Off the rails

Course activity: Towards 2040 – What will be the human factors challenges in your industry in the next 20 years?

MODULE 2:

INTRODUCTION TO HUMAN ERROR IN RAIL

- Introduction to human error
- What causes error?
- Different types of errors
- The positive side of error: Human compensatory ability

Course activity: Which error type is it?

MODULE 3:

PRACTICAL ERROR MANAGEMENT STRATEGIES

- Organisational error management strategies
- Managing unintended actions (slips & lapses)

- Managing intended actions (mistakes & violations)
- Error management checklists for inspectors, investigators and auditors

Course activity: Quiz

MODULE 4:

HUMAN PERFORMANCE LIMITATIONS

- Human information processing
- Task demands: Overload and underload
- Fitness for duty
- Managing human performance limitations in rail

Case study: SPAD incident

Course activity: Participants will examine a SPAD incident to identify human performance limitations and practical management strategies

MODULE 5:

SOCIAL & GROUP INFLUENCES ON PERFORMANCE

- Role, status, authority and conformance
- Strategies to improve team performance

Case study: Rail safety incident

Course activity: Participants will design a program to manage authority gradients

MODULE 6:

A HUMAN FACTORS ANALYSIS METHOD FOR INCIDENT INVESTIGATION

- Human factors analysis methods
- Errors and Error Producing Conditions (EPCs)
- Reactive Loss of Control Analysis (R-LOCA) model

Case study: Revisiting off the rails

Course activity: Quiz

MODULE 7:

MAJOR COURSE EXERCISE #1 – REACTIVE HUMAN FACTORS ANALYSIS

Participants will be provided with the raw data from a rail safety incident and be required to:

- Use the R-LOCA model to classify the errors and contributing factors, and
- Identify practical strategies to reduce the potential consequences of any errors identified

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Easy Ways to Register



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Informa Connect

Academy

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



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