Short Course

Railway Rollingstock
The Fundamentals of Design, Maintenance and Operations

27th - 30th November 2023

Presenters are specialists from
Monash Institute of Railway Technology and the Australian Rail Industry

Learn about the concepts, technologies, processes and standards used in rollingstock that are essential for railway professionals

The learning outcomes of this four-day course are:

- Understanding the key issues and concepts relating to rollingstock design, maintenance and operations.
- Knowledge of rollingstock technologies including structural, mechanical, electrical and communications and how each interacts within the rail system.
- Exposure to problem solving methodologies that include real world examples of how rollingstock aspects and interfaces function.

The format of the course is face to face, with interactive and flexible learning supported by activities and consolidation tasks to ensure participants learn practical skills.

The information presented will be reinforced by site visits to rollingstock manufacturing and maintenance facilities.

Who should attend

- Engineers with some rolling stock experience seeking to broaden their knowledge of rollingstock design, maintenance and operation concepts.
- Those in other areas of the railway industry wanting to understand the interaction between rollingstock and the rest of the rail system.
- People wishing to enter the rail industry.

Venue: Clayton Campus, Monash University, Victoria 3800, Australia

Date: Monday 27 November to Thursday 30 November 2023

Time: 9.00am – 5.00pm (Registration from 8.30am)

Cost: AUD$ 3,000 + GST

Morning/afternoon tea, lunch and refreshments will be provided

This is an exclusive event with limited seats.
Early registration is essential to avoid disappointment.
Please feel free to notify others who may be interested in this course.

Registration by Friday 10 November 2023

For any additional information and registration contact
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Please advise if you have any dietary or access requirements.

Endorsed by

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Course Program

Day 1: Overview of Rollingstock Types, Components and Basic Design Concepts

- Identification of the railways of Australia and commonly used rollingstock
- Description of key characteristics of different rollingstock types
- Identification of common components and their functions
- Understand the commonly used design characteristics for passenger and freight vehicles, locomotives and railcars
- Application of electrical theory for rollingstock specific applications

Day 2: Braking, Bogies, Wheel/Rail Interface, Safety, Asset Management Systems

- Identify different brake systems, and calculate stopping distances
- Understand the interaction between bogies, wheels and track
- Understanding of rail safety, ALARP & SFAIRP, ATP and RAMS
- Asset Management and Reliability Centred Maintenance principles
- Evaluate locomotive selection based on network and train requirements

Day 3: Design and Maintenance of Locomotives, Passenger and Freight Vehicles

- Identify key elements of traction and explain the key differences between AC and DC traction
- Differentiate between different traction control systems
- Understand engines, transmissions, interfaces and environmental requirements
- Calculate traction requirements for running a train, and be able to create a viable rail system

Site Visits

- Observe maintenance methods used on Diesel and electric rollingstock and understand how maintenance is conducted in maintenance depots
- Observe the manufacture of new rollingstock

Day 4: Operating Rollingstock on the Railway

- Explain how railway operations work
- Detail how rollingstock & equipment interface with track, railway signalling & electrical supply
- Discussion of the future of rail and rollingstock
- Testing of rail and vehicle materials at the IRT facility

A Course Attendance Certificate will be issued

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