Book review

Railway Management and Engineering, 4th edn

V. A. Profillidis (ed.). Ashgate, Farnham, UK, 2014, ISBN 978-1-4094-6463-1, £80 (hardback), 549 pp.

Traditionally the subject of railway engineering and management (unlike highway engineering) has not been well served by accessible books that provide a robust introduction to the topic, across all areas of the discipline in sufficient depth. Many books that cover the whole topic are rather superficial in their coverage, potentially aimed at the railway enthusiast or lacking technical detail. Others are more specialised technical texts for specific areas of what is a complex industry and cover, for example, track engineering, geotechnical issues, signalling or railway operations and management.

It is therefore welcome that a single technical volume covering all aspects of a railway system has been published to allow those who are perhaps new to the industry or studying the subject at university an overview of the complex issues and interfaces that exist in designing, building, operating and maintaining a whole rail system. The current volume is the fourth edition of the book, which has been developed and expanded over the years to incorporate wider coverage of the industry and has now expanded to 549 pages with over 350 illustrations.

The book can be split into roughly three sections, all of which allow the reader to dip in and out of a particular topic of interest or to read as a whole to give a detailed overview. In the first section, the topics covered include railway network development, planning, finance and forecasting. The second section covers the civil engineering systems of the trackbed and track systems, while the third part looks at railway operation, control and rail vehicles. The book introduces the subject by looking at the development of the railway as a transport system and then goes into developing issues of high-speed rail and magnetic

levitation systems. There are sections on railway law and planning, and demand forecasting. The mechanical aspects of design behaviour, loading performance and maintenance of rails and track systems are considered in significant depth, including alignment geotechnical and structural aspects. The key issues of railway wheel interface and loading are covered in an accessible way in what is a complex subject area. Both traditional ballast and slab track systems and switch and crossing design are included. The book also covers issues related to railway operation and power systems for electric railway operation, as well as issues related to train service provision and capacity (vehicles, crew, timetabling and signalling). The sections on railway vehicle power and control are possibly a bit superfluous; for example, the section on the diesel cycle and circuit diagrams of electric locomotive control are perhaps not necessary. However, the book manages to deal with all these subjects to a depth that will give a good overview to anyone needing an understanding of such issues to enable an appreciation of the interface between systems.

The book is very much aimed at an international audience and consequently makes extensive reference to regulations of the International Union of Railways (UIC), European Technical Specifications for Interoperability (TSIs) and European standards, as well as highlighting differences in practice across the world where appropriate.

The only criticism that can be levelled at the book is cost – at around £80 this is expensive for adoption as a core source of reference for students studying a single railway engineering module. At a cheaper price, the book could become an essential purchase for anyone embarking on a career in the railway industry. Notwithstanding, this is an excellent book and a purchase worth considering for any university or company library or for those doing a whole course in railways or for those in need of an overview text for their work.

Matthew Frost