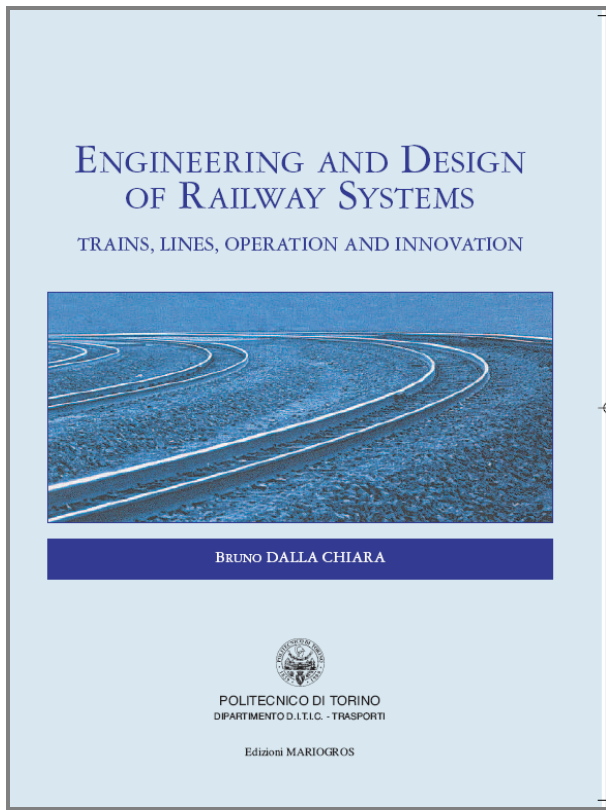


ENGINEERING AND DESIGN OF RAILWAY SYSTEMS

TRAINS, LINES, OPERATION AND INNOVATION

Author : prof. Bruno DALLA CHIARA

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SCOPE

This textbook is intended to promote an understanding of the principles and methods of modern *railway transport system engineering and design*, with particular attention to technological issues, high-speed and fast transport, based on the use of active or passive tilting trains.

The following main topics are covered:

1. The isolated *vehicle*: traction and main components;
2. The *infrastructure*: the track system, its components, layout and transition curves as used in conventional and high-speed railways;
3. Vehicle *interaction* with the infrastructure and safety;
4. *Signalling* systems and operation;
5. *Interoperability* among European railway networks, with specific reference to loading and structure gauges and to line electrification systems;
6. *Innovation and automation*, focusing on traction systems, tilting trains and advanced systems used in vehicle monitoring and traffic control.

The text concludes with an overview of the salient points in the evolution of rail transport, followed by some calculation exercises.

Rolling stock components (brakes, suspensions, bearings, etc.) are not discussed, as this topic is more within the province of vehicle mechanical design and construction. The issues involved in railway transport planning, management, operation and signalling are also beyond the scope of the text.

INTENDED READERSHIP

This textbook is intended for use by professors and students – following professional, undergraduate, post-graduate and Ph.D. courses in Industrial and Civil Engineering – involved in the study of Transport subjects, in particular the engineering, design and management of transport systems operating in a fixed way. This text is as well intended for use by those people, who, within rail transport systems field, are dealing with their engineering, design, tests, maintenance and management.

ABOUT THE AUTHOR

Bruno Dalla Chiara, engineer and editor of this text, is associate professor at the Politecnico di Torino, I Faculty of Engineering, Department DITIC-Transports; he holds the course of Engineering and Design of Transport Systems.

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