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**- TEXTBOOK -**

**RAILWAY TRANSPORT SYSTEMS**  
IMPROVING CAPACITY THROUGH INNOVATION AND AUTOMATION



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# RAILWAYS TRANSPORT SYSTEMS

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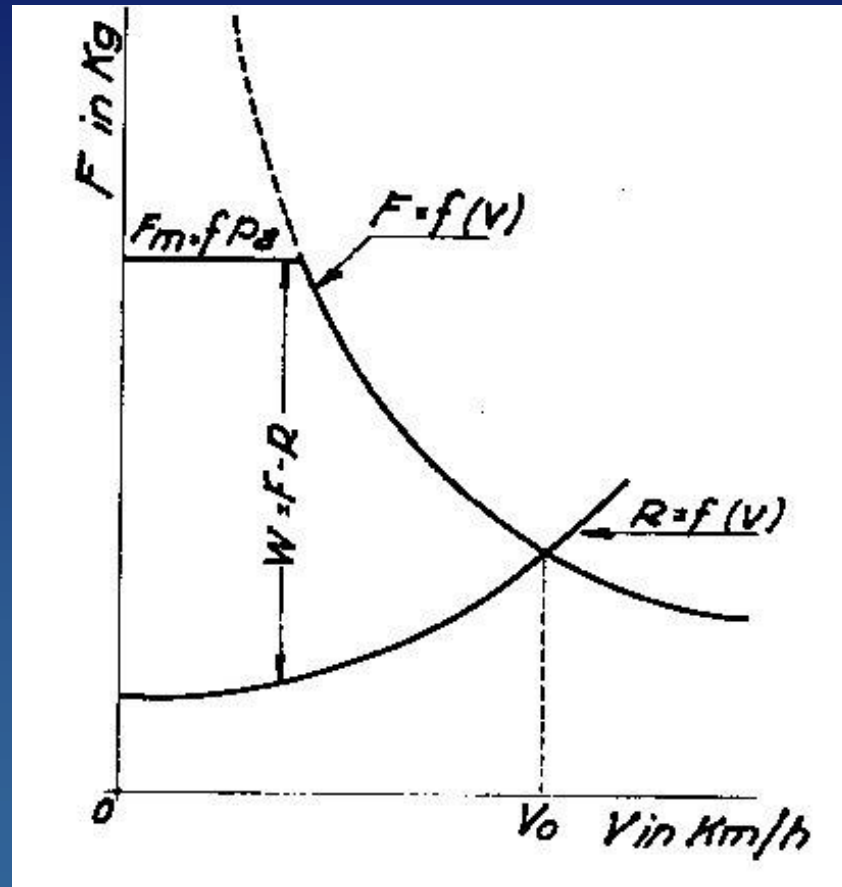
# Aims of the textbook

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

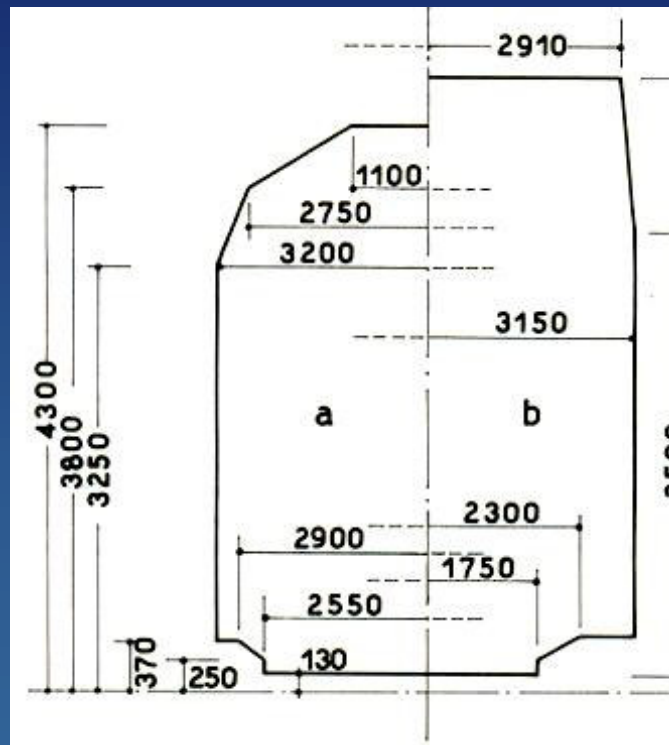
# Main topics covered by the textbook

- A. The **isolated vehicle**: traction and main components;
- B. The **infrastructure**: the track system, its components, layout and transition curves as used in conventional and high-speed railways;
- C. **Vehicle interaction with the infrastructure**;
- D. **Interoperability** among European railway networks, with specific reference to loading and structure gauges and line electrification systems;
- E. **Innovation and automation**, focusing on traction systems, **tilting trains** and advanced systems used in vehicle monitoring and traffic control.
- F. The text concludes with an overview of the salient points in the **evolution** of rail transport, followed by a number of **calculation exercises**.

# Vehicle line interaction



# Interoperability: gauge and electrification



# Active and passive tilting trains

