



# Essentials of Vehicle Dynamics

By Joop Pauwelussen

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## Essentials of Vehicle Dynamics By Joop Pauwelussen

Essentials of Vehicle Dynamics explains the essential mathematical basis of vehicle dynamics in a concise and clear way, providing engineers and students with the qualitative understanding of vehicle handling performance needed to underpin chassis-related research and development. Without a sound understanding of the mathematical tools and principles underlying the complex models in vehicle dynamics, engineers can end up with errors in their analyses and assumptions, leading to costly mistakes in design and virtual prototyping activities. Author Joop P. Pauwelussen looks to rectify this by drawing on his 15 years' experience of helping students and professionals understand the vehicle as a dynamic system. He begins as simply as possible before moving on to tackle models of increasing complexity, emphasizing the critical role played by tire-road contact and the different analysis tools required to consider non-linear dynamical systems. Providing a basic mathematical background that is ideal for students or those with practical experience who are struggling with the theory, Essentials of Vehicle Dynamics is also intended to help engineers from different disciplines, such as control and electronic engineering, move into the automotive sector or undertake multi-disciplinary vehicle dynamics work.

- Focuses on the underlying mathematical fundamentals of vehicle dynamics, equipping engineers and students to grasp and apply more complex concepts with ease.
- Written to help engineers avoid the costly errors in design and simulation brought about by incomplete understanding of modeling tools and approaches.
- Includes exercises to help readers test their qualitative understanding and explain results in physical and vehicle dynamics terms.

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## Essentials of Vehicle Dynamics By Joop Pauwelussen Bibliography

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## **Editorial Review**

### **About the Author**

Dr. Pauwelussen has 20 years' experience in vehicle dynamics and currently teaches vehicle technology with a special interest in tires and driver behavior. He worked as Research Manager for vehicle dynamics at TNO for 11 years prior to his current position, where he managed a number of high profile research projects. At HAN University of Applied Sciences, he established a professional master's automotive program covering structural mechanics, vehicle dynamics and vehicle control. With a background in mathematics and mechanics, his research and teaching are focused on balancing practical engineering with a thorough, mathematical treatment.

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