

Vehicle Dynamics and Control, Second Edition
Rajamani Rajesh
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Vehicle Dynamics and Control is one book in the “Springer Mechanical Engineering Series.” Its almost 500 pages are written in a clear and concise format and will be most useful as a resource to researchers working on the development of vehicle dynamic controls in industry or university and it can also be used as a graduate level textbook on the same subject. Each of the sixteen chapters follows a format of presenting a technical concept, exploring the mathematical foundation and using examples to illustrate. Each chapter has a summary, a nomenclature list and an extensive list of references.

The book begins with a general introduction that provides an overview of some of the major electromechanical feedback control systems under development in the automotive industry and in research laboratories. Each subsequent chapter covers a specific topic. The topics covered in this book include, lateral vehicle dynamics, steering control for automated lane keeping, longitudinal vehicle dynamics, adaptive cruise control, vehicle platoons, electronic stability control, mean value

modeling of SI (spark ignition) and Diesel engines, passive and active automotive suspensions, tire forces, tire-road friction measurements, roll dynamics and rollover prevention and hybrid gas electric vehicle dynamics. A special effort has been made to explain the several different tire models commonly used in literature and to interpret them physically. In this second edition, topics of roll dynamics, rollover prevention, and hybrid electric vehicles and electronic stability control have been significantly enhanced. A copious amount of figures, graphs and tables along with mathematical derivations are used to explain and supplement the topic under discussion.

The author states “. . .it has become ever more important to develop vehicles that optimize the use of highway and fuel resources, provide safe and comfortable transportation and at the same time have minimal impact on the environment.” The information contained in *Vehicle Dynamics and Control* will serve as a useful resource to help researchers develop electromechanical systems to achieve this goal.

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