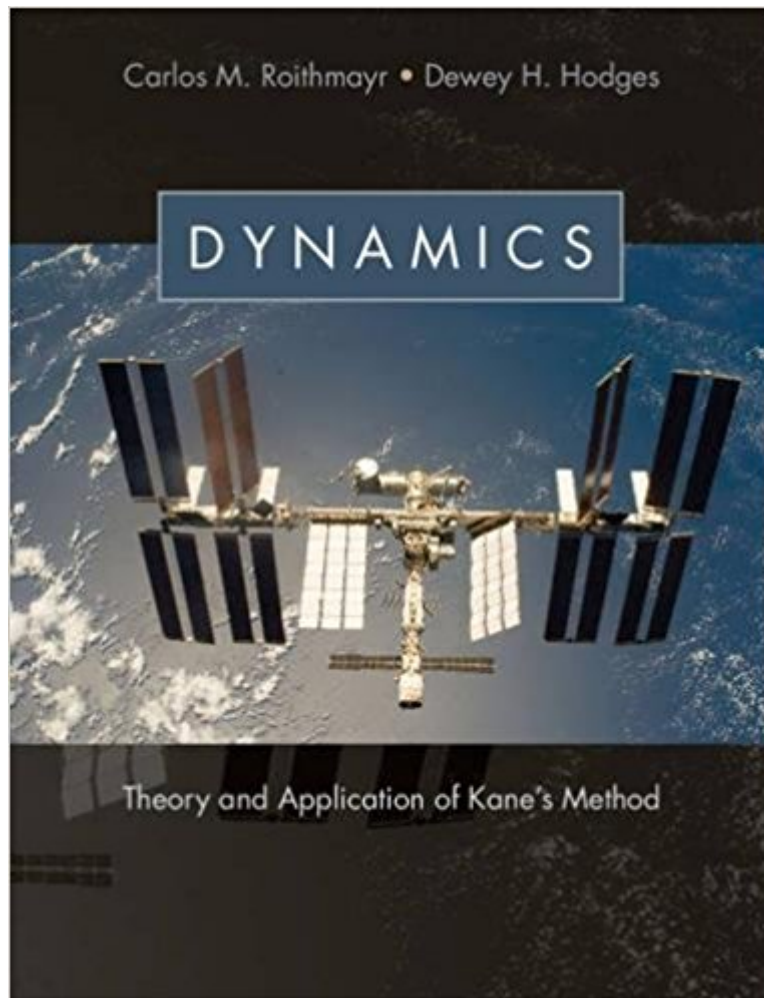


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# Dynamics: Theory And Application Of Kane's Method



## Synopsis

This book is ideal for teaching students in engineering or physics the skills necessary to analyze motions of complex mechanical systems such as spacecraft, robotic manipulators, and articulated scientific instruments. Kane's method, which emerged recently, reduces the labor needed to derive equations of motion and leads to equations that are simpler and more readily solved by computer, in comparison to earlier, classical approaches. Moreover, the method is highly systematic and thus easy to teach. This book is a revision of *Dynamics: Theory and Applications* by T. R. Kane and D. A. Levinson and presents the method for forming equations of motion by constructing generalized active forces and generalized inertia forces. Important additional topics include approaches for dealing with finite rotation, an updated treatment of constraint forces and constraint torques, an extension of Kane's method to deal with a broader class of nonholonomic constraint equations, and other recent advances.

## Book Information

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## Customer Reviews

'Dynamics: Theory and Application of Kane's Method is a timely update of the now classical book by Kane and Levinson by two authors, collectively with many decades of experience stretching across academia and government laboratories. While providing coverage of a broader class of problems and of recent advances in the field, the rigor and clarity of the original text is retained. This new book will be welcomed by many working on dynamics and control of complex mechanical and aerospace multibody systems.' Olivier A. Bauchau, *Journal of Computational and Nonlinear*

## Dynamics

This is a textbook for advanced students in engineering or physics - and a reference for professionals - interested in deriving equations that govern the motions of mechanical systems. It presents Kane's method, which is well suited for dealing with several bodies fastened together to form a multibody system. The method enjoys widespread application in analyzing the dynamics of complex spacecraft and robotic devices.

Highly recommended to those involved with the dynamics of complex multi-body systems. Equations of motion are developed thru Kane's method, which in many cases leads to a more direct and efficient derivation. The text is very clearly and carefully written. The material is suitable to those who have had some prior knowledge of freshman/sophomore Dynamics. Indispensable for engineers working in aerospace, and multi-body control systems.

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