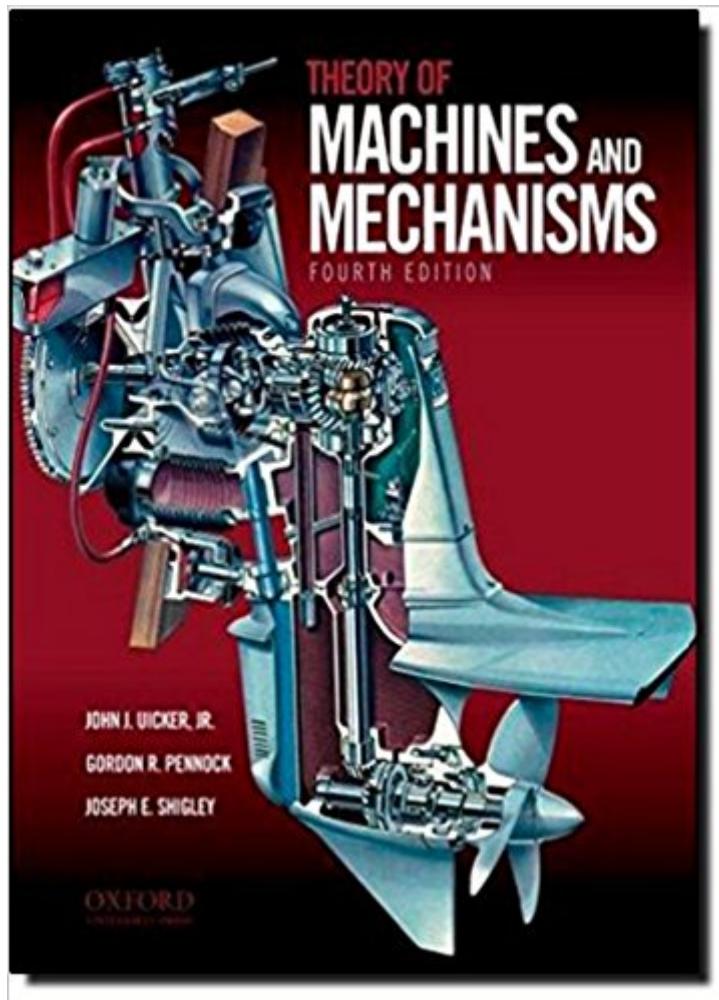


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# Theory Of Machines And Mechanisms



## **Synopsis**

Theory of Machines and Mechanisms provides a text for the complete study of displacements, velocities, accelerations, and static and dynamic forces required for the proper design of mechanical linkages, cams, and geared systems. The authors present the background, notation, and nomenclature essential for students to understand the various independent technical approaches that exist in the field of mechanisms, kinematics, and dynamics. Now fully revised in its fourth edition, this text is ideal for senior undergraduate or graduate students in mechanical engineering who are taking a course in kinematics and/or machine dynamics.

## **Book Information**

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## **Customer Reviews**

John J. Uicker, Jr., is Professor Emeritus of Mechanical Engineering at the University of Wisconsin-Madison. Gordon R. Pennock is Associate Professor of Mechanical Engineering at Purdue University. The late Joseph E. Shigley was Professor Emeritus of Mechanical Engineering at the University of Michigan.

This book is required for students of ME 352, Machine Design I, at Purdue University, where the course is taught by one of the authors, Gordon Pennock. I am an alum of the ME school at Purdue. Machine Design there is taught in a two-course sequence. Machine Design I teaches the kinematics and kinetics of mechanisms, i.e. linkages, cams, shafts, etc. Once you can analyze the dynamics of a mechanism throughout its motion, you can then use that information to design the members of a mechanism to withstand the incurred stresses of operation, and select the correct components to

make the machine function. These latter topics are taught at Purdue in Machine Design II, known more broadly as "machine elements." Topics of that course include stress in linkages, fatigue, bearing life, springs, brakes, gear design, fasteners and design of bolted joints, lubrication, welding and adhesives, etc. If you seek to learn these topics, buy Shigley's book or equivalent, not this book. This book is mathematically rigorous, and somewhat sparse on practical explanations. If you take the course from Pennock at Purdue, you benefit from much more explanation and narrative than the book offers, and also some review of topics that the book assumes you already know. If you plan to self-teach from this book, you'd better be strong in engineering math and dynamics, and be prepared to absorb and internalize new concepts. The core feature of this book is the use of "kinematic coefficients" to solve the dynamics of a mechanism. This is a very powerful method for solving mechanisms, and my understanding is that its teaching is relatively rare in undergraduate machine dynamics courses. Again, if you self-teach from this book, you probably won't appreciate the elegance of this method, nor understand that there are other less mathematically-rigorous, more labor-intensive ways of solving the problem. Summarily, this book teaches the analysis of machine dynamics, not the details of individual mechanical components. If you're an engineer looking for quick practical advice to solve your widget's mechanism problem before an impending deadline, this probably isn't the book you're looking for. If you seek to learn an in-depth, robust methodology to analyze machine dynamics, then consider this book. Also, there just isn't a replacement for a good machine dynamics professor. This book is fine if you have a strong instructor to learn from, but I wouldn't recommend self-teaching from this book unless you're exceptionally smart. At the same time, I don't have a better recommendation.

While the equations inside the book are we gold the authors make this book a little more wordy than it has to be in quite a few chapters. I honestly have used more of my knowledge from dynamics and searching Google to get the equations I need for my class than I have referred to the book because of how clumsy it is written.

It's a textbook...

Bought this for an engineering class and I would not recommend this book. The book describes basic theory but does not teach the reader how to solve useful problems. I would suggest using the internet to find other more useful resources.

Bought this textbook for an undergrad mechanical engineering class. The textbook did an ok job at explaining things but definitely required time to soak in.

This book is kinda hard to follow, but it was the required text for my class.

Just what he needed

Great!Thanks!

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