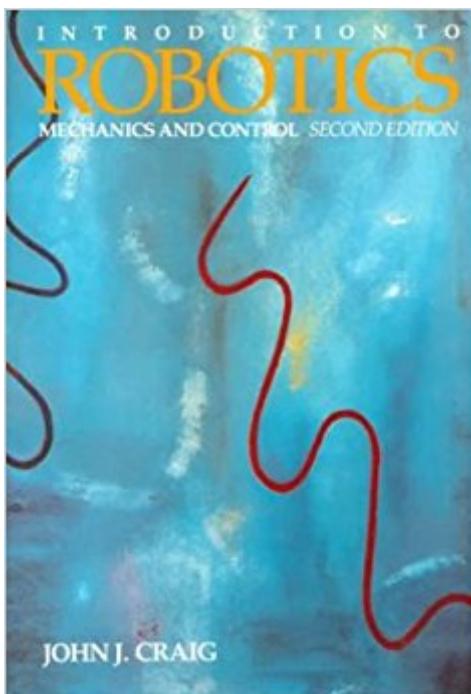The book was found

Introduction To Robotics: Mechanics And Control (2nd Edition)

Synopsis

The second edition of this highly successful book introduces the science and engineering of mechanical manipulation and provides a complete overview of the fundamental skills underlying the mechanics and control of manipulators. This edition features new material on Controls, Computer-Aided Design and Manufacturing, and Off-Line Programming Systems. Each chapter introduces the fundamentals of a topic and uses specially-designed examples to demonstrate the use of these principles. The first edition was the winner of the Society of Manufacturing Engineers' M. Eugene Merchant Manufacturing Textbook Award.

Book Information

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Customer Reviews

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This is a university level test book that covers the mathematics of forward and inverse kinematics well. This edition is old but the math does not change. It is easy to understand if you have the required math background, maybe Linear Algebra and Calculas through Diff. Eqs. Basically the first two years of engineering math. The book is still readable if you lack that background but it will be hard to use the informationThis is not a "how to build a robot" book it is an solid introduction to robot kinematics and a good reference. Especially given the price of used copies. I bought my copy here on for 85 cents.

An easy-to-read introduction into fundamentals of mechanics and control of robotic systems. Lots of handy illustrations. Somewhat old-fashioned with the robot programming languages - where I would have preferred chapters on planning instead - but this might be due to its age or preferences of the author.

good

I had this book for an Intro to Robotics class I took. And I must say, this is by far the worst textbook I've ever read. It is dense, confusing, and hard to read. There are typos everywhere. When it is laying out problems and equations, it likes to skip a few steps and assume you can follow along. To sum it up, this book is useless.Seriously, if you are going to take a course and this book is required, don't take the course. If the prof was any good they wouldn't pick this book.

The explanation of basic robotics theory is good. Without question robotics is not a topic that should be approached casually. As an ME student or EE student even an introductory robotics course will require knowledge you gained all throughout your freshman and sophomore classes as well as your junior and senior level classes. The biggest drawback of this book that I found was the quality of the binding. A couple of weeks into the semester the pages started to come out in groups of 10 to 20 at a time. It seems the publisher used a very poor quality glue in making the text. When I took the class everyone else in the class had the same problem. For the sake of everyone else that might be using this book for a class I can only hope we got a bad batch, because the content in the book is quite good.

Standard textbook on the subject. Recommended to me by a teacher of robotics. This book did not disappoint. The 3-D transformation matrix is worth the whole price of admission. Old editions still apply to the modern world. Matrix math heavy.

Over all, I would say this is the best source for understanding mechanics and control theory as it relates to robotics motion. It really gets into the details that books on the subject of computational robots such as "Introduction to Autonomous Mobile Robots" and "Computational Principles of Mobile Robotics" simply do not have the room to accommodate. Chapters two and three go into great detail on the matrix transformations and geometry necessary to relate one frame of motion to

another. Chapter four is the best chapter on the subject of inverse kinematics that I have found in print. This chapter tackles the difficult problem of answering the question: "Given starting point A and stopping point B, what forces must come to bear on a particular robotic arm to get from A to B?" Chapter five introduces the very important matrix entity entitled the Jacobian, which is necessary for the study of both velocities and static forces. Once again, the computational robotics books in print mention the Jacobian and use the Jacobian, but none I have encountered actually bother to explain it as this book does. Chapters six and seven round out the discussion of mechanics with tutorials on the subject of manipulator dynamics. Chapter eight is less mathematical, and it deals with the mechanical design of robot elements. A background in mechanics of materials would be helpful for understanding this chapter, but you can still get through it even without it. Finally, chapters nine through eleven deal with control theory and the modeling of robot manipulators. The math gets a bit sparse in these chapters, and I don't think that the level of explanation is as good here as it is in the first eight chapters dealing with mechanics. Chapters twelve and thirteen deal with robot programming systems and should be understandable by anyone with some computer programming experience. The book is full of worked numerical examples and exercises with the solutions to selected exercises given in the back of the book. The book also has many Matlab programming exercises, which is great since most mathematical robotics problems are too complex to solve without Matlab. The only part of the book that I found somewhat weak in the least bit would be the chapters on control theory.In summary, to really appreciate this book you should already have some background in engineering mechanics - say a course in both statics and dynamics, and also some understanding of control theory, with a desire to apply this knowledge specifically to computational issues in robotics. You cannot be a robotic hobbyist and tinkerer with no background in engineering or mathematics and gain much from this book. From reading the other reviews, I think this misunderstanding might be where some of the bad ratings are coming from.

My gf needed this for her phd qualifying exam.It got her well prepared for it apparently, as she passed it!

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