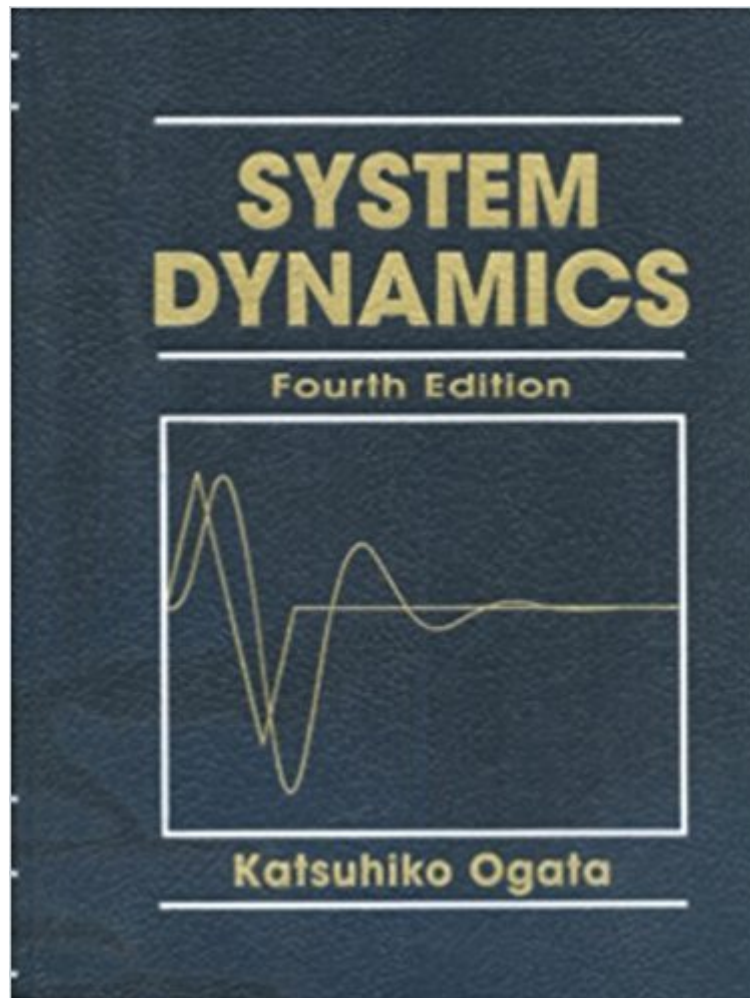


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# System Dynamics (4th Edition)



## Synopsis

This text presents the basic theory and practice of system dynamics. It introduces the modeling of dynamic systems and response analysis of these systems, with an introduction to the analysis and design of control systems. KEY TOPICS Specific chapter topics include The Laplace Transform, mechanical systems, transfer-function approach to modeling dynamic systems, state-space approach to modeling dynamic systems, electrical systems and electro-mechanical systems, fluid systems and thermal systems, time domain analyses of dynamic systems, frequency domain analyses of dynamic systems, time domain analyses of control systems, and frequency domain analyses and design of control systems. For mechanical and aerospace engineers.

## Book Information

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## Customer Reviews

This is a well crafted book by an author who is obviously familiar with the more classical approach to teaching this subject. Excellent and extensive treatment of example problems which help solidify concepts. Very few of those "it is left up to the student" phrases. The book's subject matter progression is one of the best I've read. The chapter on state space concepts comes a little late, but is well presented. An excellent book for review and practical applications.

This book is very helpful for those who are doing system dynamics course. I spent more than 4 hours in my university library (KFUPM), comparing this book to other system dynamics books and I found the following result. This book contains the most solved examples than other system

dynamics books I have seen. Each chapter of this book contains lots of solved problems that came in my quizzes, major, and final exams. Unlike other system dynamics books I have seen, this book does not discuss Mason loop rule method which is easier to use instead of Block reduction rule method mentioned in this book. I, also, think that this book does not explain very well how to plot Bode Diagrams by hands. Like other system dynamics books I have seen, this book does not provide the students with the solutions of the questions given at the end of each chapter. Regardless of its few minuses, this book is still an excellent one and I strongly recommend it. To overcome its minuses, buy this book as well as "Modern Control System" which is written by Richard C. Dorf & Robert H. Bishop. Modern Control System is also a wonderful book and a very interesting one. It is better than System Dynamics book in that the concepts are explained deeply. Mason loop rule, Block reduction rule, and plotting Bode Diagrams by hands are very well explained in this book. It is easy to understand and very illustrated. Compared to System Dynamics book, this book has 7 excellent appendices plus a fantastic index, which can also be used as a glossary. Additionally, and above all, the solved examples plus the questions given at the end of each chapter deal with the modern systems, equipments, devices, and with the recent technology available today. I passed this course depending on these two books plus my instructor's notes and got "B+". I strongly believe that the students using these two books will be in very good shapes.

As my professor said, this is a classic book that's been used for a while. It really shows in the sense that it covers everything you really need. It gives a ton of examples, walkthroughs of problems, and even more practice problems to challenge your understanding. It's the go-to book for understanding Dynamic Systems and modeling in my opinion.

The text was utilized illustrating the fundamentals of dynamical systems, a topic rather hard to comprehend for undergraduates, with the emphasis on a strong background in Laplace transforms. The text used good systematic strategies in explaining related material all through the book. Overall an excellent text from Ogata.

I bought this as a requirement for a Mech. Engr. class I'm in. To make this book useful you have to be an expert at differential equations, Laplace transforms, etc. If not, you won't follow the book. There are examples in the book, but the author gives the problem, usually shows one (MAYBE two) steps in between then magically shows the final answer when there are about 20 steps in between. This book is way more confusing than helpful. Do not recommend.

It proved information I needed to get a grasp about System Dynamics. It was nice that there were also solved problems for each chapter.

This is the worst textbook I have ever used or owned. Though it is filled with examples and problems (presumably the reason my university chose it as the required text) learning any new material from its incoherent presentation of the material is impossible (presumably why my professor lectured and used examples from another text). As an example, I missed the lecture covering Nyquist plots. I sat down with the book, thinking with an hour or two I'd be able to master the material by looking through the section in the book on the subject. I ended up in office hours. My negative opinion of the book is shared by everyone I have spoken to about it, and most students scramble to find a better text when they learn how bad this one truly is. Pros: Many examples and problems. Provides instruction for using Matlab in conjunction with controls. Cons: Presentation of the material is terrible.

I rated this one 4 stars only because of the international price but man this guy could've went into a little bit more detail on the review for Laplace transform in particular brushing up our memory on Calc 2 and complex algebra and dude these problems in this book shouldn't be taken lightly!

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