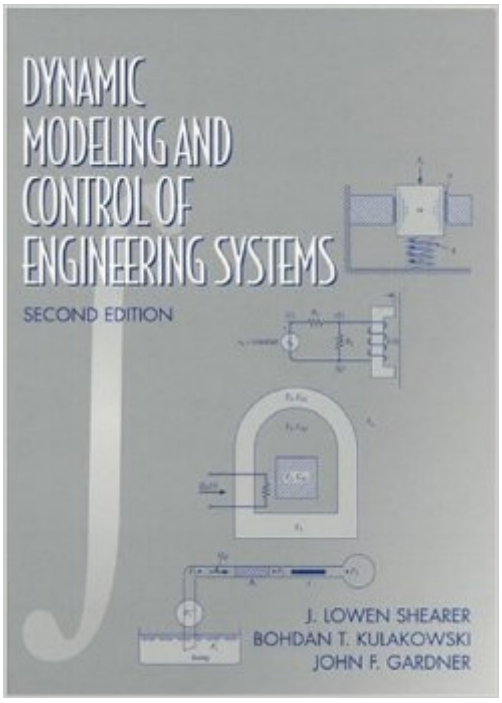
Dynamic Modeling And Control Of Engineering Systems (2nd Edition)



Synopsis

This book presents a comprehensive treatment of the analysis of lumped parameter physical systems. The first portion of the book deals with the fundamentals of dynamics system modeling including a discussion of mechanical systems (translational and rotational), analytical solutions of ordinary differential equations and a discussion of state space theory. This book includes treatment of both input/output and state space models, analogies between physical domains (mechanical, electrical, fluid, and thermal) with an emphasis on the appropriate physical laws, an in-depth discussion of mixed (multi-domain) systems, and a discussion of nonlinearities and linearization methods. Contains chapters on Discrete- Time systems and digital control. It also presents a discussion of transfer functions, stability, and feedback control. It provides specific examples and problems geared toward MATLAB and SIMULINK as well as example files and supplementary files to run with MATLAB and SIMULINK. A valuable reference book for engineering and computer professionals responsible for systems modeling.

Book Information

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Customer Reviews

A great introduction to control theory.However, it would help if you know something about differential equations. I read Ogata’s book on control (over 900 pages) from cover to cover twice and still could not figure out exactly what state variables are. This book explains things very well but you do need to do the problems at the end of each chapter. The use of "free-body" diagrams is a great

idea.Ogata's book is great for explaining a lot of the details but this book explains the important things in a concise but easy to understand manner. I now finally understand how to draw a system diagram by starting from the inputs for each separate system. Everything is brought together -- system diagrams,transfer functions,state variables,the purpose for LaPlace transforms,and input-output models. This is not a book about control theory and it is covered in only the last two chapters but if you are taking, or going to take, a course in control theory,read this book first. It will save you a lot of frustration and bewilderment.

I'm finally starting to understand! I took a class and lab as an undergrad and got my B and barely understood anything except Laplace Transforms (the math part). I won't bash that book here, but it was bad.This book starts from the ME Dynamics, ME Heat Transfer, and ME Fluids courses as foundations and takes you to the control level slowly without jumping straight into diff equations. Too many classes and books can't succsessfully bridge this critical engineering gap through basic mechanics examples and instead they attempt to bridge it through pure math. BIG MISTAKE!This book makes the transition nicely. You can generate useful equations here (which is often the most difficult part of controls.) Lots of time spent on each type of system and their repective variables.If you want to study pure math without application background knowledge then this isn't the book for you. If you want real world examples that apply to your long term ME career, then this would be a way to get started.

The book can be wordy at times and very author specific for terms. He doesnt use the symbols most students are used to using to represent variables. Don't buy unless professor required.

I got the book fast and it is just like it was advertisedI am happy with this seller.thank you

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