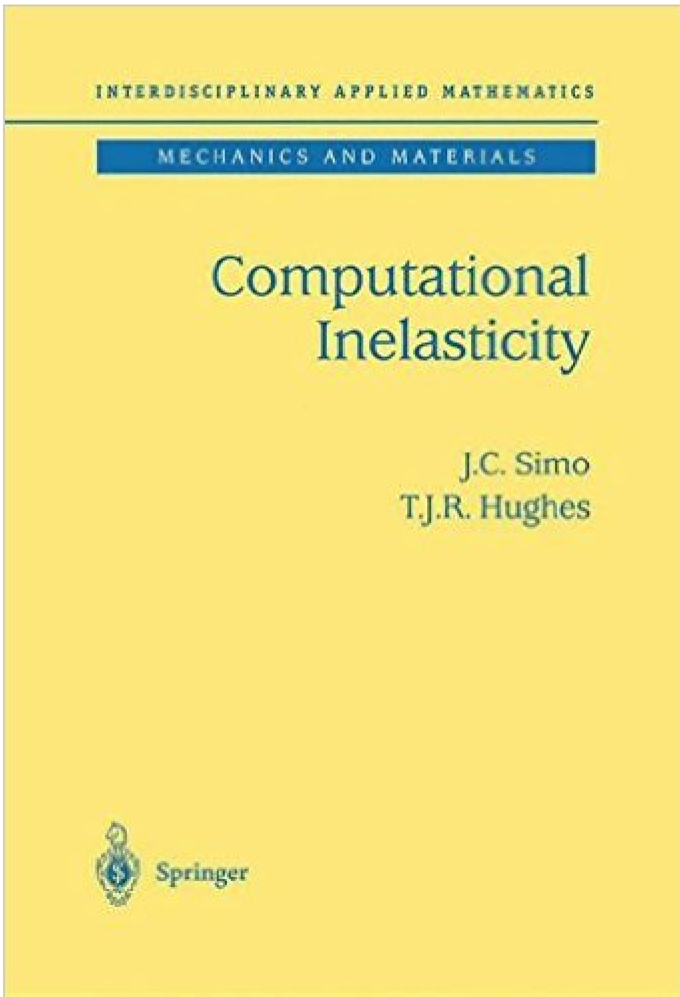
Computational Inelasticity (Interdisciplinary Applied Mathematics) (v. 7)



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Customer Reviews

I bought this book several years ago, and keep going back and study more in it. As usual, I didn’t read it from front to back. Instead I started from the middle, jumped around and then settled for chapter 7. That’s mainly a review of continuum mechanics, and one of the reasons I keep this book handy. It is very comprehensive and very clear. I think the reason Simo and Hughes could explain things so clear is because they just really deeply understood it. There is hardly any superfluous talking or name dropping, it’s all just clear, well printed math and neat little diagrams that lets you get the point. Somehow I understood chapters 8 and 9 much better by first reading chapter 10 on nonlinear viscoelasticity, finally getting the idea of dissipative processes in solids, and how one can actually compute all this. Recently I studied more of the first part of the book: finally this stuff about yield surfaces makes sense. It’s a real mystery buster. Another thing that makes this book very useful are the boxes: detailed algorithms, neatly printed, that actually work if you turn them into computer code. In general, this book is not for total beginners, but if you understand the very basic mathematical underpinnings for continuum mechanics, this will bring you to the next level. If you get stuck, read around in other books, but go back to this one, because that’s were you will understand.

The book had been in the making at Stanford for some time. I happened to use a manuscript of it in 1991 at Virginia Tech. I was pleasantly surprised how quickly a student could pick up relevant aspects of compuatational plasticity from this book; the book has a style of its own. We have successfully used the book in programming the integral (or endochronic) hardening rule with the incremental theory of plasticity. The book surely makes a useful companion to a plasticity textbook.It is disheartening to see that the numerical schemes for the integration of the constitutive equations of the endochronic theory are missing from the book.

This textbook covers very classical areas of solid mechanics. But it differs from the previous texts in providing the right numerical framework for the implementation of these classical ideas. It also contains some very recent results in constitutive modelling developed by the authors (eminent Stanford University academicians).For all those in the Finite Element industry, doing numerical modelling work, this will be an excellent text/reference.

Pros: gives numerical solution algorithms for isotropic and kinematic hardening, etc; covers a wide range of plasticity problems.Cons: lack of detailed step by step deduction for some important equations, difficult to swallow by first time learners

This book is really well organised, and the theory is well presented, particularly Chapter 1. It is among the few which I highly recommend, and it is value for money.

Congruences, and Secrets: A Computational Approach (Undergraduate Texts in Mathematics) Ideals, Varieties, and Algorithms: An Introduction to Computational Algebraic Geometry and Commutative Algebra (Undergraduate Texts in Mathematics) Symmetric Eigenvalue Problem (Prentice-Hall series in Computational Mathematics) Applied Cryptography: Protocols, Algorithms, and Source Code in C [APPLIED CRYPTOGRAPHY: PROTOCOLS, ALGORITHMS, AND SOURCE CODE IN C BY Schneier, Bruce (Author) Nov-01-1995 Elena Bablenis Haveles BS Pharm Pharm D's Applied Pharmacology 6th (Sixth) edition(Applied Pharmacology for the Dental Hygienist [Paperback])(2010) Applied Therapeutics: The Clinical Use of Drugs (APPLIED THERAPEUTICS (KODA-KIMBLE)) Applied Biopharmaceutics & Pharmacokinetics, Sixth Edition (Shargel, Applied Biopharmaceuticals & Pharmacokinetics)