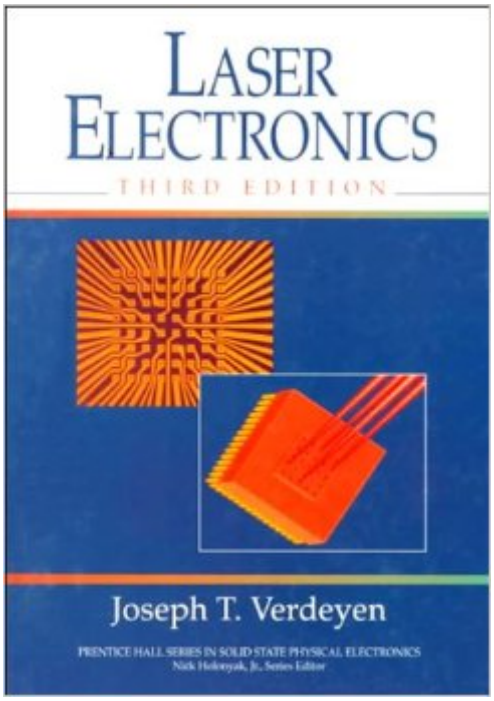
Laser Electronics (3rd Edition)



Synopsis

Best seller for introductory courses in Laser Electronics and Quantum Electronics. This is a practical approach to introductory laser electronics that emphasizes real-world applications and problem-solving skills over theory, providing a clear understanding of both optical and microwave frequencies.

Book Information

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Average Customer Review: 2.9 out of 5 starsÂ Â See all reviewsÂ (21 customer reviews)

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Customer Reviews

The text describes theorems with the words "disguised" and tells us how Einstein came about his conclusions without giving any detail. Then there’s the classic phrases to assume that the reader knows "x,y,z" and wastes his time talking about how we know it. To fill the lack of description he employs the following: "obviously","nevertheless" and"accepting these characteristics on faith."I agree with another reviewer on here that he OFTEN describes the simplistic and leaves the difficult for problems, so if you don’t have a solutions manual, it’s not that helpful. This also makes it extremely irritating for a graduate student, as I can follow the easy parts, but the difficult parts are swept under the rug. Don’t BOTHER WITH THIS BOOK UNLESS YOU WANT IT FOR REVIEW or your learning Ray matrices (does a decent job with that.)Finally, this book is composed of bits of history, flowery English, and lists of equations when it’s supposed to be a textbook rather than clear derivations. It is awful. I recommend it no one.Garbage.(recent favorite) EXAMPLE, second paragraph of Chapter 7 on Atomic Radiation:"These concepts are amazingly simple and quite palatable, even to those who have not had a formal introduction to quantum mechanics."I’m glad

that he thinks the idea that atoms resonating in one high energy state and dropping to another less high energy state and emitting a photon is a simple concept. I'm talking to atoms, not electrons here. Personally I think the photoelectric effect is easier, but so be it. Thank you mr. palatable I reserve my right to read further in other texts.

The definitive work on laser engineering. A good reference for all things laser. It's also a pretty good read, for a textbook. A copy of this probably belongs on the bookshelf of anybody in the laser/photonics field. There are many errors in it, for example the Einstein A coefficient listed for the Ne laser transition, so numbers should be double checked against other references.

This book uses math extensively to describe lasers (granted math IS necessary). The book assumes you have a very good background in the subject material already. Still, not a bad book to have on the shelf to look in if you have some need for a deeper look at lasers. This is a book for people already advanced in the their understanding of lasers who seek further advancement. This is not an introductory book.

The layout of this book is very pleasant. Nice, clean typography. The presentation is informal without sacrificing accuracy. However, the author seems to have a bad habit. When the explanation is straightforward (ie the reader can probably figure it out on his/her own), he does a fine job of explaining. When explanations are really needed, he relegates them to the problems. For example, in the sections dealing with the density matrix formalism, he assigns in the general formulation a characteristic decay constant to each energy level. So when it comes to working out the two-level problem, he should explain why he can justifiably "simplify" the problem by assigning a single decay time constant to the population difference between the two levels, instead of perserving the two different decay constants. This is one of the more subtle points in the whole density matrix presentation, yet he weasels out of the situation by leaving it to the problems section. The same pattern is repeated in the part where a comparison between the results of rate equations and density matrix are made. When it comes time to really point out the reason for the validity of the rate equations, he relegates it to the problems again. This is unfortunate, since a proper explanation would clearly demonstrate true insight into the physics.

The book will work for the student who is sufficiently prepared in quantum mechanics and electromagnetism. If one were to learn laser physics without the background of these classes, then

they would be doing themselves a great disservice.The book covers lots of the "bare-bones" topics essential to understanding lasers. However, the book comes to a screeching halt when advanced derivations need to be completed, leaving it up to the reader to figure it out. The book does have extensive reference lists at the end of each chapter to supplement those deficiencies.Unfortunately there will not be a future edition to this book. This book is probably the best fit for a senior undergraduate course and not a graduate course (Yariv is probably a better fit at this conjuncture). The senior undergraduate will have to work hard in order to get the most out of this book!

This book is definately not for the novice. This book covers a large amount of material in its 777 pages. I got this book as an undergraduate for an advanced optics survey course. It was a little sparse on the explanations for an undergraduate. In graduate school however, this text has come in handy a number of times to fill in the gaps from other books or in heavy-duty problem solving. His coverage of gain saturation, broadening and line-widths I thought were especially usefull, as well as his coverage of the ABCD matrices. All in all, a must-have for your optics bookshelf.