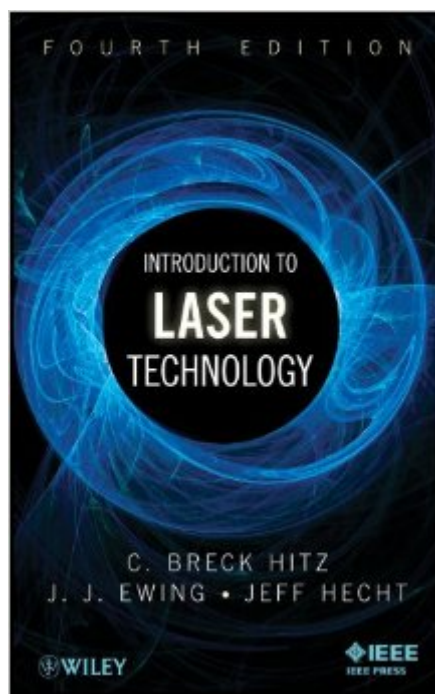


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# Introduction To Laser Technology



## Synopsis

The only introductory text on the market today that explains the underlying physics and engineering applicable to all lasers. Although lasers are becoming increasingly important in our high-tech environment, many of the technicians and engineers who install, operate, and maintain them have had little, if any, formal training in the field of electro-optics. This can result in less efficient usage of these important tools. *Introduction to Laser Technology, Fourth Edition* provides readers with a good understanding of what a laser is and what it can and cannot do. The book explains what types of laser to use for different purposes and how a laser can be modified to improve its performance in a given application. With a unique combination of clarity and technical depth, the book explains the characteristics and important applications of commercial lasers worldwide and discusses light and optics, the fundamental elements of lasers, and laser modification. In addition to new chapter-end problems, the Fourth Edition includes new and expanded chapter material on: Material and wavelength Diode Laser Arrays Quantum-cascade lasers Fiber lasers Thin-disk and slab lasers Ultrafast fiber lasers Raman lasers Quasi-phase matching Optically pumped semiconductor lasers. *Introduction to Laser Technology, Fourth Edition* is an excellent book for students, technicians, engineers, and other professionals seeking a fuller, more formal introduction to the field of laser technology.

## Book Information

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## Customer Reviews

Around 2 months ago, this became the 4th book I purchased on the subject of lasers/optics since October; I was also given 2 other books by my committee advisor, and have poked through other resources in the library. As an engineering doctoral student--not a physicist--whose research includes the use of lasers, this book is by far the single best resource I have found. It doesn't grind you into boredom with too much underlying math, but rather emphasizes concepts and examples so you can quickly gain a solid intuitive foothold for understanding how lasers work. If, like me, you find it necessary to drill deeper into the math, electromagnetics, and quantum theory, there are ample resources elsewhere to help you get there... this book allows you to focus on understanding how lasers work, and does so in an interesting and very readable way. My wife (whose background is childhood education, and doesn't consider herself technically oriented) started looking at the pictures and examples in the book and asking me questions about them... she usually has absolutely no interest in my engineering textbooks. If I had to recommend a single book to start off with for someone with little or no background in laser technology, this would definitely be the one. I wish I had purchased this book first! It would have saved me a lot of time coming up to speed on the subject.

Seemingly aimed at an undergraduate audience, this book should be approachable to a high school student who has had trigonometry. (Although a course in chemistry, or at least some introduction to atomic spectra, would be helpful.) It starts with the basics of light propagation and moves into the idea of the laser, discussing gain and resonators. Various types of control, such as q-switching and line-narrowing, are covered. Different types of lasers are discussed, as well as non-linear processes for frequency shifting. The technical discussion is kept at a very basic level, with the inevitable simplification that results. There are, unfortunately, some typos and editing errors. The discussion of laser types is tilted a bit towards excimer lasers, perhaps not surprising as J. J. Ewing was one of the developers of the technology. If you have no experience with lasers and want a straightforward book that will explain the basics, this book is a good choice. A little more attention to detail would have made it an even better book.

As a reviewer for I often get the chance to review books that I might not purchase (usually due to high costs). When I saw this book was available for review, and I read the first (and only review at that time) written by someone who actually purchased the book, I decided to request this book myself. I was mainly intrigued by the reviewer's comments that his non-technical wife was interested in some of the concepts. This book lives up to its title . . . it is a great Introduction to Laser Technology. The first chapter provides a workable definition of what a laser is, and then the chapter goes on to identify the many areas of our lives in which lasers are used. Everything in this chapter could be read and understood by an average reader. Chapter Two starts introducing the more technical aspects, including a variety of graphs and formulas which at quick glance could be intimidating--but the author clearly explains each and makes the physics of lasers understandable. My guess is that most people looking at this title need it for a college course. If not, and you are looking for an in-depth introduction to laser technology--this book would do it!

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