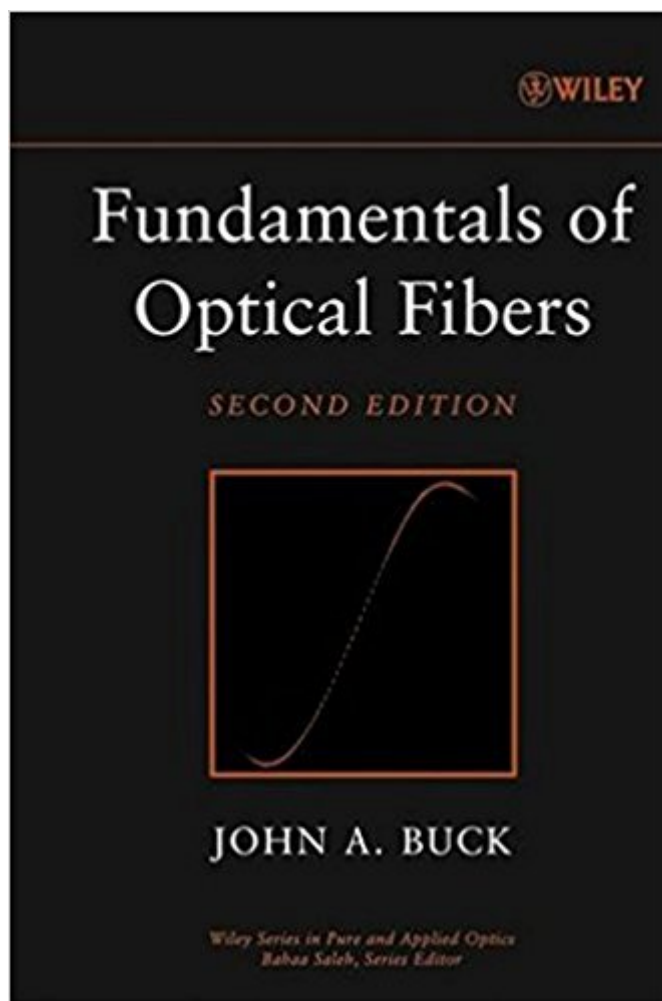


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# Fundamentals Of Optical Fibers



## Synopsis

Fundamentals of Optical Fibers, Second Edition offers readers a timely and consistent introduction to the fundamental principles of light propagation in fibers. In it, the author reviews, in depth, fundamental wave guiding concepts, the influence of various fiber structures and materials on light transmission, nonlinear light propagation effects occurring in fibers, and various measurement techniques. Since the chief application of optical fibers is in communication systems, throughout the book the focus is on topics, which pertain to that domain.

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## Customer Reviews

The purpose of this book is to provide the reader with a balanced account of the basics of light propagation in fibers. Includes the current level of technology in optical fiber design, along with measurement techniques and nonlinear effects. Provides a thorough treatment of the basic topics in optical fiber transmission and includes scores of examples and end-of-chapter problems. --This text refers to an out of print or unavailable edition of this title.

Fundamentals of Optical Fibers offers students a timely, pedagogically consistent introduction to the fundamental principles of light propagation in fibers. In it, Professor John A. Buck reviews, in depth, fundamental waveguiding concepts, the influence of various fiber structures and materials on light transmission, nonlinear light propagation effects occurring in fibers, and various measurement techniques. Since the chief application of optical fibers is in communication systems, throughout the

book the focus is on topics which pertain to that domain. In the first part of the text, the author lays the groundwork for later discussions with a detailed review of the relevant electromagnetic principles and how they apply to the analysis of wave propagation. He also introduces basic field equations and delineates the fundamental principles of dielectric wave-guides. In the second part, he explores the limitations of fiber transmission, paying particular attention to the problems of loss and dispersion. He reviews fabrication procedures and alternative fiber designs as they relate to minimizing loss and dispersion. And he presents field analysis methods for single mode and multimode fibers having graded index profiles. In the last part, Professor Buck reviews the basics of nonlinear optics and discusses the origins of nonlinear effects and the conditions under which they appear in fibers. This section also features a discussion of fiber amplifiers, along with a review of the fundamentals of light amplification by stimulated emission. Offering a well-balanced presentation of the basics of light propagation in fibers, and including real-world examples and end-of-chapter problems, *Fundamentals of Optical Fibers* is an excellent text for senior- to graduate-level courses in electrical engineering or physics. It is accessible to anyone who has taken at least a one-semester course in electromagnetics at the undergraduate level.

Adequate in its explanations, but not outstanding. I still had to google a lot of things that were imprecisely or obliquely explained, but that seems to be the nature of engineering pubs these days -- maybe Sal Khan is the only one left in the world who can provide good explanations (?)

This book is incredibly thorough. Really hits what you need to know. Lot of equations, but each one has an explanation. Definitely a great resource to have on your shelf. Provides a very indepth description of nonlinear optics as well, in relation to fibers. Excellent.

This covers its topic very well. It presents the main ideas intuitively and either outlines the proof or cites references for those who want to explore at greater depth. It may not be up to date, but it is surely a good introduction.

Great book.

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