Introduction to Fourier Optics

Joseph W. Goodman

Introduction to Fourier Optics

Joseph W. Goodman

Introduction to Fourier Optics Joseph W. Goodman
Introduction to Fourier Optics is the standard teaching and reference text for Fourier Optics and optical Information processing. Over the years, applications of these principles have been important in diverse fields such as pattern recognition, image processing, displays, sensors, communications, data storage and imaging systems. Previous editions have included updated material on holography and wavefront modulation. In this most recent edition, a new chapter describes devices and techniques important for optical communications, emphasizing the interplay between time, temporal frequency, space and spatial frequency. Topics such as fiber Bragg gratings, ultrashort pulse shaping and spectral holography are presented in the same clear and understandable yet detailed manner as the other topics in the text. Once again, the use of Fourier techniques provides particular insight into the principles and applications of these important new fields. This latest edition is an outstanding enhancement of this classic text. About Author: Joseph W Goodman is William Ayer Professor Emeritus. He held the William Ayer Chair in Electrical Engineering at Stanford and also served in several administrative posts.

Introduction to Fourier Optics Details

Date	:	Published May 1st 2017 by W. H. Freeman (first published January 1st 1968)
ISBN	:	9781319119164
Author	:	Joseph W. Goodman
Format	:	Hardcover 491 pages
Genre	:	Science, Physics, Reference

From Reader Review Introduction to Fourier Optics for online ebook

Anubhab Haldar says

Good progression of topics. Great writing. Also great for self-teaching.

Kyle says

This is the classic introduction for senior undergrads and grad students to Fourier optics. I have a few critiques on the organization and content, but overall it's one of the best sources out there for learning the topic.

1) Too little focus is given to the angular spectrum treatment of diffraction and too much to the analysis of the Rayleigh-Sommerfeld diffraction integral, in my opinion. From a practical standpoint, the angular spectrum is of much more use in the laboratory and for understanding optical setups.

2) The book seems to be divided in purpose; the first six chapters teach the foundations of Fourier Optics while the remaining chapters serve as a summary of what's been done within the literature. Readers might be better served by a book that focuses exclusively on the theory and concepts, especially since much of the later material (analog optical processing, film-based holography) is somewhat outdated and has found little use outside of very specific applications where digital image processing has failed to achieve success.

3) More treatment of coherence theory and Fourier techniques in light scattering would be appreciated.

Overall, though, the book is succinct, precise, and clear.
