

# Lightwave Technology: Telecommunication Systems

By Govind P. Agrawal

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## Lightwave Technology: Telecommunication Systems By Govind P. Agrawal

The state of the art of modern lightwave system design

Recent advances in lightwave technology have led to an explosion of high-speed global information systems throughout the world. Responding to the growth of this exciting new technology, Lightwave Technology provides a comprehensive and up-to-date account of the underlying theory, development, operation, and management of these systems from the perspective of both physics and engineering.


The first independent volume of this two-volume set, Components and Devices, deals with the multitude of silica- and semiconductor-based optical devices. This second volume, Telecommunication Systems, helps readers understand the design of modern lightwave systems, with an emphasis on wavelength-division multiplexing (WDM) systems.

- \* Two introductory chapters cover topics such as modulation formats and multiplexing techniques used to create optical bit streams
- \* Chapters 3 to 5 consider degradation of optical signals through loss, dispersion, and nonlinear impairment during transmission and its corresponding impact on system performance
- \* Chapters 6 to 8 provide readers with strategies for managing degradation induced by amplifier noise, fiber dispersion, and various nonlinear effects
- \* Chapters 9 and 10 discuss the engineering issues involved in the design of WDM systems and optical networks

Each chapter includes problems that enable readers to engage and test their new knowledge to solve problems. A CD containing illuminating examples based on RSoft Design Group's award-winning OptSim optical communication system simulation software is included with the book to assist readers in understanding design issues. Finally, extensive, up-to-date references at the end of each chapter enable students and researchers to gather more information about the most recent technology breakthroughs and applications.

With its extensive problem sets and straightforward writing style, this is an excellent textbook for upper-level undergraduate and graduate students. Research

scientists and engineers working in lightwave technology will use this text as a problem-solving resource and a reference to additional research papers in the field.

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### **Editorial Review**

From the Back Cover

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#### **About the Author**

GOVIND P. AGRAWAL, PhD, is a Professor of Optics at The Institute of Optics, University of Rochester, New York, and a Fellow of the Optical Society of America and the IEEE. Internationally recognized as an expert in his field, Dr. Agrawal has authored or coauthored more than 300 research papers, books, and monographs.

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