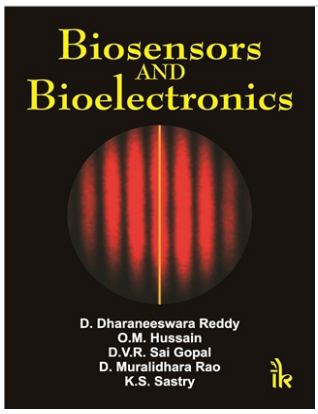
Book Information Sheet



Biosensors and Bioelectronics, 1/e

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About the Book

The development of novel nano-biomaterials and composites with unique properties is one of the fundamental driving forces in design and development of biosensors and bioelectronics to enhance the wealth and well-being of the society. The past twenty years of biosensors research has a significant impact in science and technology. The emerging field of bioelectronics makes use of biology in conjunction with electronics in a wider context.

Bioelectronics embodies the exploitation of biological or biologically inspired molecules as an integral part of an electronic device and the biosensors are the analytical embodiment of this art. The integration of electronics and development of packaging technologies make it possible to manufacture sensors and electronics on a silicon chip no bigger than a pin head. A key aspect is the interface between biological materials and micro- and nanoelectronics.

The book divided in 18 chapters covers:

- Biosensors – History and Overview;
- Components and Performance factors;
- Biorecognition and Immobilization;
- Biosensor Technology and Fabrication;
- Transducers;
- Biosensors types and Applications in Clinical, Medical and Healthcare, Food Industry, Agriculture and Environmental Monitoring;
- Molecular Electronics;
- Photonic Computers and Carbon Chemistry.

This book also extends information on piezoelectric transducers, electromagnetic acoustic transducers (EMAT), molecular electronic seismometers (MES) and conductometric transducers.

Through its broad coverage, it can also be used for undergraduate courses or specialized graduate courses (B.Tech Biotech) on advanced topics.

Salient Features

- Covers different aspects of biosensors and bioelectronics and their applications in various sectors like clinical, medical and healthcare; agriculture and food industry; and environmental monitoring.
- Explains relevant fundamental principles, components and making/working of bioelectronic devices, like biosensors, transducers etc.
- Provides dedicated chapters on transducers, biochip, molecular electronics and photonic computer.
- Profusely illustrated with line drawings, micrographs and photographs, and with suitable examples to support discussion on various bioelectronic technologies and systems.
- Provides important abbreviations in the beginning, and a detailed glossary and list of reference at the end of the book.

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About the Author

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