



# Medical Device Technologies: A Systems Based Overview Using Engineering Standards (Academic Press Series in Biomedical Engineering)

By Gail Baura

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## Medical Device Technologies: A Systems Based Overview Using Engineering Standards (Academic Press Series in Biomedical Engineering) By Gail Baura

*Medical Device Technologies* introduces undergraduate engineering students to commonly manufactured medical devices. It is the first textbook that discusses both electrical and mechanical medical devices.

The first 20 chapters are medical device technology chapters; the remaining eight chapters focus on medical device laboratory experiments. Each medical device chapter begins with an exposition of appropriate physiology, mathematical modeling or biocompatibility issues, and clinical need. A device system description and system diagram provide details on technology function and administration of diagnosis and/or therapy. The systems approach lets students quickly identify the relationships between devices.

Device key features are based on five applicable consensus standard requirements from organizations such as ISO and the Association for the Advancement of Medical Instrumentation (AAMI).

- The medical devices discussed are Nobel Prize or Lasker Clinical Prize winners, vital signs devices, and devices in high industry growth areas
- Three significant Food and Drug Administration (FDA) recall case studies which have impacted FDA medical device regulation are included in appropriate device chapters
- Exercises at the end of each chapter include traditional homework problems, analysis exercises, and four questions from assigned primary literature
- Eight laboratory experiments are detailed that provide hands-on reinforcement of device concepts

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### **Editorial Review**

#### About the Author

Dr. Baura received her BS Electrical Engineering degree from Loyola Marymount University, her MS Electrical Engineering and MS Biomedical Engineering degrees from Drexel University, and her PhD Bioengineering degree from the University of Washington. Between her graduate degrees, she worked as a loop transmission systems engineer at AT&T Bell Laboratories. She then spent 13 years in the medical device industry conducting medical device research and managing research and product development at several companies. She holds 20 U.S. patents. In her last industry position, Dr. Baura was Vice President, Research and Chief Scientist at CardioDynamics. In 2006, she returned to academia as a Professor of Medical Devices at Keck Graduate Institute of Applied Life Sciences, which is one of the Claremont Colleges.

Throughout her career, Dr. Baura has championed engineering curriculum excellence. She has written four engineering textbooks, three of which are medical device textbooks. She is an ABET Engineering Accreditation Commissioner. In her new position as Director of Engineering Science at Loyola, she is constructing a general engineering curriculum that incorporates substantial industry input and prepares new engineering graduates for positions in the medical device, semiconductor, and wastewater treatment industries.

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