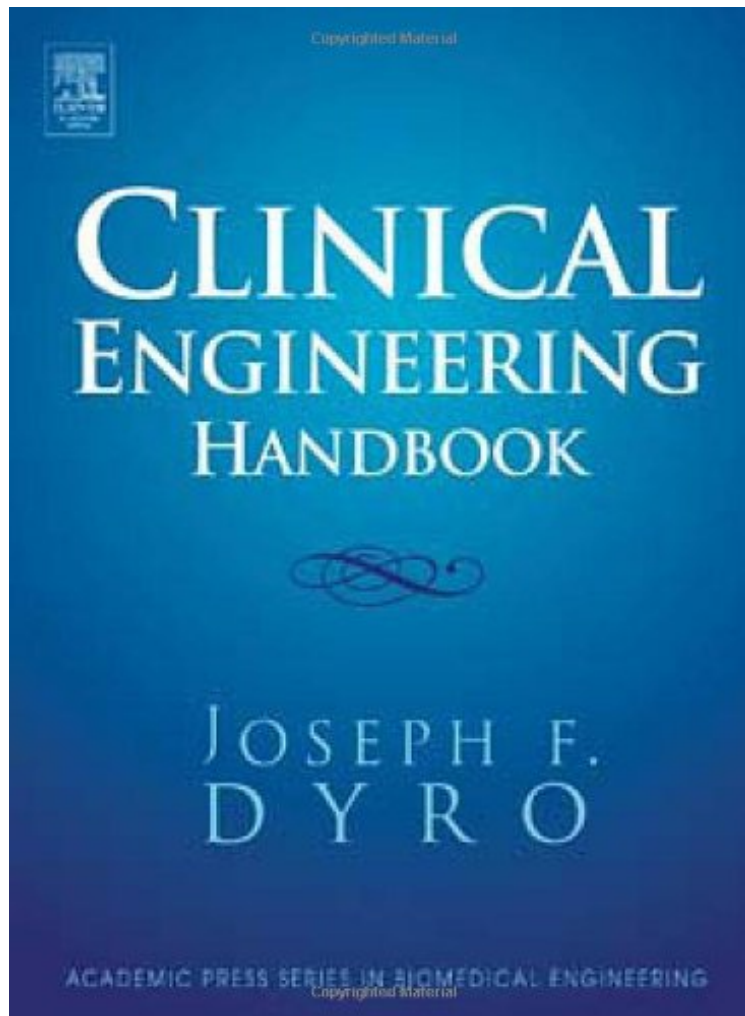


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## Clinical Engineering Handbook (Biomedical Engineering)

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**Ernesto Iadanza, Joseph Dyro M.S. and Ph.D. Biomedical Electronics Engineering University of Pennsylvania : Clinical Engineering Handbook (Biomedical Engineering)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Clinical Engineering Handbook (Biomedical Engineering):

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As the biomedical engineering field expands throughout the world, clinical engineers play an evermore-important role as translators between the medical, engineering, and business professions. They influence procedure and policy at research facilities, universities, as well as private and government agencies including the Food and Drug Administration and the World Health Organization. The profession of clinical engineering continues to seek its place amidst the myriad of professionals that comprise the health care field. The Clinical Engineering Handbook meets a long felt need for a comprehensive book on all aspects of clinical engineering that is a suitable reference in hospitals, classrooms, workshops, and governmental and non-governmental organization. The Handbook's thirteen sections address the following areas: Clinical Engineering; Models of Clinical Engineering Practice; Technology Management; Safety Education and Training; Design, Manufacture, and Evaluation and Control of Medical Devices; Utilization and Service of Medical Devices; Information Technology; and Professionalism and Ethics. The Clinical Engineering Handbook provides the reader with prospects for the future of clinical engineering as well as guidelines and standards for best practice around the world. From telemedicine and IT issues, to sanitation and disaster planning, it brings together all the important aspects of clinical engineering. Clinical Engineers are the safety and quality facilitators in all medical facilities. The most definitive, comprehensive, and up-to-date book available on the subject of clinical engineering. Over 170 contributions by leaders in the field of clinical engineering.

13 sections, 142 chapters, 694 pages, 116 contributors! This is a comprehensive overview of the history and state of the art of clinical engineering written by an international group of generally well-known contributors to the field. For brevity's sake I shall give an overview of the major sections of this text. Section one covers clinical engineering history, roles, models (academic, regional, military), job descriptions, and careers. Section two gives an overview of worldwide practices in clinical engineering, with example chapters covering the practice in several countries, such as Estonia, Paraguay and Japan. Section three gives an overview of healthcare technology management topics, covering good manufacturing practices, outsourcing, maintenance and repair, etc. There are several useful forms and flowcharts to be found here. Section four reviews management styles, finances, personnel matters, skills needed, and quality assurance. Section five reviews several topics involving safety, such as risk management, best practices, accidents, and special cases involving electrical safety and electromagnetic interference. Section six reviews the education and training of clinical engineers, including reviews of practices in North America and Germany, internships, BET licensing, the use of workshops and distance education, etc. Section seven reviews the design, manufacture, evaluation and control of medical devices. It includes some useful material on human factors, liability, and Institutional Boards. Medical Devices, Utilization and Service is the title of section eight. This section reviews devices commonly used in different sections of the hospital (e.g. anesthesiology and perinatology) and as well discusses troubleshooting techniques. Section nine reviews information sources, transmission, and processing. Included are sections on PACS, Telemedicine, Wireless Medical Telemetry, Virtual Instruments, and the effects of the HIPA Act. Section ten reviews several topics often relegated to environmental and plant engineers, such as HVAC, Electrical Power considerations, Radiation Safety, Sanitation, Construction and Renovation, Water Systems, and Disaster Planning. Section eleven reviews Medical Device Standards, Regulations, and the Law. This is mandatory reading for all engineering involved in medicine. It covers JCAHO Accreditation, AAMI and ANSI standards, the FDA and other regulatory agencies, liability law, and ISO standards. Section twelve briefly reviews professionalism and ethics in clinical engineering practice, and gives some examples of professional organizations in New England and in Germany. Section thirteen, the final part of the text, briefly addresses some potential future trends in clinical engineering practice and some of the trends that may affect it. To reiterate: this is an exceedingly comprehensive handbook. The field of clinical engineering (worldwide) is very well described here. While the level of each individual chapter varies considerably (from one page summaries to multiple page well-documented and illustrated chapters) this text overall will be very useful as a reference text for practitioners and students of clinical engineering. Many individual chapters will serve as teaching material for lectures in clinical and bioengineering courses. The page count and purchase price of this text were obtained from the Academic Press web site, and may not be accurate as of the publication date. (This review was based upon page proofs.) The editor and each author are to be congratulated for their contribution to the literature in this field. ed by: Paul H. King, Vanderbilt

University. The Clinical Engineering Handbook makes an excellent resource, particularly to someone newly entering or thinking about entering the field. It provides a good background to the wide array of tasks, programs, innovations and challenges to the clinical engineering profession... Overall, the handbook is well written and the breakdown into very specific chapters makes referencing easy. - ACCE News, Nov./Dec. 2004. "The Clinical Engineering Handbook makes an excellent resource, particularly to someone newly entering or thinking about entering the field. It provides a good background to the wide array of tasks, programs, innovations, and challenges to the clinical engineering profession." - Journal of Clinical Engineering, June 2005. From the Back Cover. A volume in the Biomedical Engineering Series. The most up-to-date book available on the subject of clinical engineering. Over 170 contributions by leaders in the field of clinical engineering. Advocacy efforts and professional stature will be enhanced

by the publication of this definitive, comprehensive text on clinical engineering. As the biomedical engineering field expands throughout the world, clinical engineers play an evermore-important role as translators between the medical, engineering, and business professions. They influence procedure and policy at research facilities, universities, as well as private and government agencies including the Food and Drug Administration and the World Health Organization. The profession of clinical engineering continues to seek its place amidst the other professionals that comprise the health care team. The Clinical Engineering Handbook meets a long felt need for a comprehensive book on all aspects of clinical engineering that will be suitable as a reference in the hospital, classroom, workshop as well as governmental and non-governmental organizations. The Handbook's thirteen sections address the following areas: Clinical Engineering; Models of Clinical Engineering Practice; Technology Management; Safety Education and Training; Design, Manufacture, and Evaluation and Control of Medical Devices; Utilization and Service of Medical Devices; Professionalism and Ethics. The Handbook of Clinical Engineering provides the reader with prospects for the future of clinical engineering as well as guideline and standards for best practice around the world. From Telemedicine and IT issues, to sanitation and disaster planning, it brings together all the important aspects of clinical engineering. Related titles: Enderle, Blanchard, Bronzino; Introduction to Biomedical Engineering, 01222386604, 1999. About the Author: Chairman of the Clinical Engineering Division Board at the IFMBE and Chairman of the Education and Training Committee at the IUPESM. Clinical Engineering consultant and advisor, Adjunct Professor in Clinical Engineering at the University of Florence (Italy), and member of IFMBE, EMBS, IEEE. Dr. Ernesto Iadanza received both his MSc degree (Electronics Engineering - biomedical curriculum) and his PhD degree (Telematics) at the University of Florence (Italy). He is the founder and coordinator of the Biomedical Committee - Association of Professional Engineers, Florence. He was awarded with the IBM Faculty Award in 2013.