Physics of the Human Body (Biological and Medical Physics, Biomedical Engineering)

Irving P. Herman
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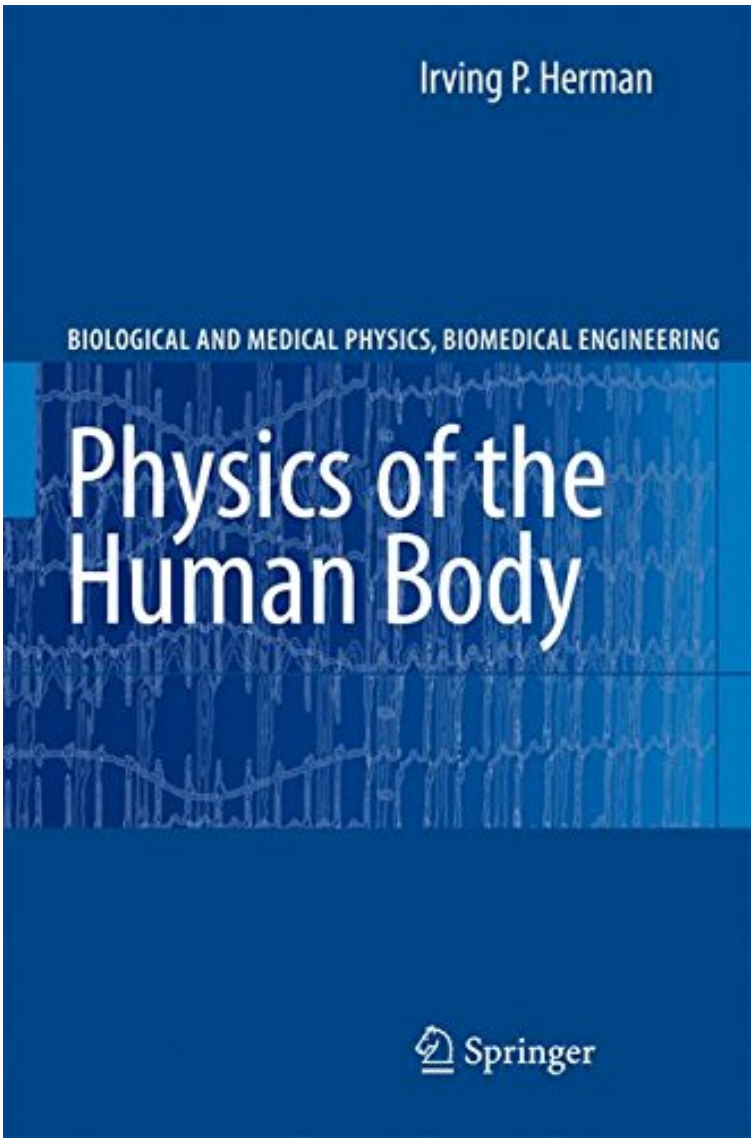

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Irving P. Herman : Physics of the Human Body (Biological and Medical Physics, Biomedical Engineering) before purchasing it in order to gage whether or not it would be worth my time, and all praised Physics of the Human Body (Biological and Medical Physics, Biomedical Engineering):

6 of 7 people found the following review helpful. At last!By C. NeilsFinally, a bioengineering textbook that I can

require in my undergraduate courses with a clear conscience. This is the best text I have found for introductory biomechanics, and has content that supports courses in physiology and systems analysis as well. It has numerous quantitative questions/problems with appropriate content and difficulty for undergraduates. It lays a foundation in sophomore-level statics (e.g. free body diagrams with sigma(F)=0) so BioE students can acquire some of the same problem-solving strategies as their ME/AA counterparts. On the other hand, there is no classical truss analysis (method of joints/sections), that being replaced with biomechanical examples that teach some musculoskeletal anatomy as a side benefit. Most illustrations are black-and-white, well suited for 2-D vector analysis, but the infrequent gray-scale photographic illustrations leave much room for improvement.1 of 2 people found the following review helpful. Excellent textBy renato brandolesePhysics of the human body is a weighty book of quasi 900 pages that explores the complex relationships between physic laws and anatomical apparatus of the human body. Substantially this book is not difficult to understand but more than some chapter requires the knowlewdge of a mathematical approach of a superior order derivates, integrals etc.). In conclusion this issue appears to fit better with bioengeenering than with clinical medicine.0 of 2 people found the following review helpful. Great book but wish it was interactive and in 4DBy William O. Glascoe IIII bought this book for the biophysical parameters of the macro and meso scales of the human body. I'll have to go to other resources for the biophysical (bio signals, sensors, instruments sensitive at the) nano and micro scales (of structure and behavior). If you work through the all the end of chapter problems, clearly you attain an excellent grasp of human dynamics that should serve you well in the biomechanics profession. I do long for the offering of this material in the form of an interactive humanoid that serves as the user interface to the equations of motion, simulation output and immersive animations. My pursuit of Human Health Graphs will deliver capabilities like these to individuals with the distinct difference being the humanoid will be theirs from frequent home-based, low-cost whole body skin images (10^9 pixels; skin pore resolution) and total body scans (10^8 polygons; shape only) with auto-registeration of medical images (from ionizing and non-ionizing radiation) into personalized, time-dependent anatomical structures from an idealized human.

This book comprehensively addresses the physical and engineering aspects of human physiology by using and building on first-year college physics and mathematics. It is the most comprehensive book on the physics of the human body, and the only book also providing theoretical background. The book is geared to undergraduates interested in physics, medical applications of physics, quantitative physiology, medicine, and biomedical engineering.

From the reviews: "The text is a welcome alternative approach to introductory physics for premedical students and is an excellent prelude to topics in bioengineering. The books emphasis is on the macrophysics of body physiology, a subject highly relevant to first-year medical students. In short, Physics of the Human Body contains much to enrich the training of life sciences students and help them appreciate how even basic physics is increasingly important to medicine. its pedagogical approach makes it a suitable textbook." (Suzanne Amador Kane, Physics Today, March, 2008)From the Back CoverPhysics of the Human Body comprehensively addresses the physical and engineering aspects of human physiology by using and building on first-year college physics and mathematics. Topics include the mechanics of the static body and the body in motion, the materials properties of the body, muscles in the body, the energetics of body metabolism, fluid flow in the cardiovascular and respiratory systems, the acoustics of sound waves in speaking and hearing, vision and the optics of the eye, the electrical properties of the body, and the basic engineering principles of feedback and control in regulating all aspects of function. The goal of this text is to understand physical issues concerning the human body, in part by developing and then using simple and subsequently more refined models of the macrophysics of the human body. Many chapters include a brief review of the necessary physical principles. There are problems at the end of each chapter; solutions to selected problems are also provided. This text is geared to undergraduates interested in physics, medical applications of physics, quantitative physiology, medicine, and biomedical engineering. About the AuthorIrving P. Herman is Professor of Applied Physics in the Department of Applied Physics and Applied Mathematics at Columbia University in New York, NY. He received B.S. and Ph.D degrees in physics from MIT, where he was a Fannie and John Hertz Predoctoral Research Fellow. He then joined the Lawrence Livermore National Laboratory, which he left in 1986 to join Columbia University. His main research areas have evolved from using lasers for separating deuterium and tritium isotopes, to following and inducing thin-film reactions, and, more recently, to analyzing nanomaterials, and also investigates the guided assembly of nanomaterials. He is a fellow of the American Physical Society and the Optical Society of America, held the Lady Davis Fellowship Visiting Professorship at Hebrew University, and was the Seidman Family Series Lecturer at the Technion. He was chair of his department for six years and director of the National Science Foundation MRSEC Center for Nanostructured Materials at Columbia for 12 years. He has also authored the monograph Optical Diagnostics for Thin Film Processing and over 150 papers in peer reviewed journals, and has three patents.