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Engineering Computations: An Introduction Using MATLAB and Excel, 2nd edition

Written for engineering students, Engineering Computation: An Introduction Using MATLAB and Excel, 2nd edition provides a concise introduction to both MATLAB and Excel, and explores applications from a...

Author: Joseph C. Musto, William E. Howard, Richard R. Williams

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Language: English

Publisher: McGraw-Hill

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<https://www.amazon.com/Engineering-Computation-Introduction-Using-MATLAB/dp/007338027X>

Biomechanics: Concepts and Computation

Written for undergraduate biomedical engineering students, this book integrates the classical concepts of mechanics and computational modeling techniques through a wide range of fundamental biomechanics principals. The many examples and problems using biomedical applications will enable readers to practice and test their skills. Topics covered include vector calculus, static equilibrium, biological materials and continuum mechanics, and shape functions and numerical integration.

Cees Oomens, *Eindhoven University of Technology*

Marcel Brekelmans, *Eindhoven University of Technology*

Frank Baaijens, *Eindhoven University of Technology*

[Cambridge University Press](#), 2009

ISBN: 978-0-521-87558-5

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<https://www.amazon.com.br/Biomechanics-Concepts-Computation-Cees-Oomens/dp/0521875587>

Applied Biomechatronics Using Mathematical Models

Applied Biomechatronics Using Mathematical Models provides an appropriate methodology to detect and measure diseases and injuries relating to human kinematics and kinetics. It features mathematical models that, when applied to engineering principles and techniques in the medical field, can be used in assistive devices that work with bodily signals. The use of data in the kinematics and kinetics analysis of the human body, including musculoskeletal kinetics and joints and their relationship to the central nervous system (CNS) is covered, helping users understand how the complex network of symbiotic systems in the skeletal and muscular system work together to allow movement controlled by the CNS. With the use of appropriate electronic sensors at specific areas connected to bio-instruments, we can obtain enough information to create a mathematical model for assistive devices by analyzing the kinematics and kinetics of the human body. The mathematical models developed in this book can provide more

effective devices for use in aiding and improving the function of the body in relation to a variety of injuries and diseases.

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Author: Jorge Garza Ulloa

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