CEES OOMENS, MARCEL BREKELMANS, FRANK BAAIJENS
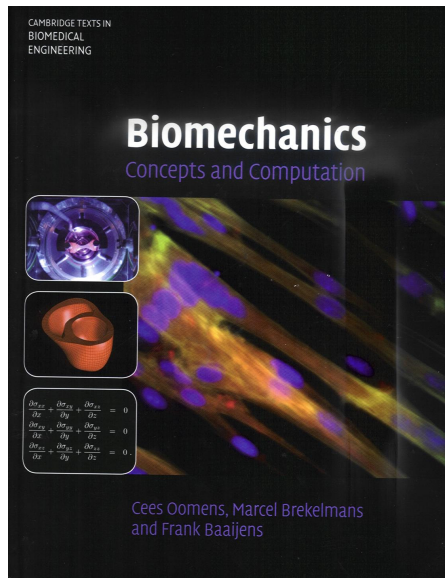
BIOMECHANICS
CONCEPTS AND COMPUTATION

SERIES: CAMBRIDGE TEXTS IN BIOMEDICAL ENGINEERING

Biomechanics: Concepts and Computation is the first textbook that integrates both general and specific topics, theoretical background and biomedical engineering applications, as well as analytical and numerical approaches. This quantitative approach integrates the classical concepts of mechanics and computational modelling techniques, in a logical progression through a wide range of fundamental biomechanics principles.

The book covers topics such as kinematics, equilibrium, stresses and strains, and also focuses on large deformations and rotations and non-linear constitutive equations, including visco-elastic behaviour and the behaviour of long slender fibre-like structures.

Biomechanics: Concepts and Computation is the definitive textbook for students. In Chapter 14 to 18 extensive use is made of a finite element code written in Matlab by one of the authors, which is specifically developed as a tool for students. The finite element code, which is a set of Matlab scripts, including manuals, is freely available and can be downloaded from the website:
www.mate.tue.nl/biomechanicsbook

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