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Nota di contenuto	1 Introduction -- 2 Force Vector -- 3 Moment and Torque -- 4 Statics: Analyses of Systems in Equilibrium -- 5 Applications of Statics to Biomechanics -- 6 Introduction to Deformable Body Mechanics -- 7 Stress and Strain -- 8 Multiaxial Deformations and Stress Analyses -- 9 Mechanical Properties of Biological Tissues -- 10 Introduction to Dynamics -- 11 Linear Kinematics -- 12 Linear Kinetics -- 13 Angular Kinematics -- 14 Angular Kinetics -- 15 Impulse and Momentum -- Appendix A Plane Geometry -- A.l Angles -- A.2 Triangles -- A.3 Law of Sines -- A.4 The Right-Triangle -- A.5 Pythagorean Theorem -- A.6 Sine, Cosine, and Tangent -- A.7 Inverse Sine, Cosine, and Tangent -- Appendix B Vector Algebra -- B.1 Definitions -- B.2 Notation -- B.3 Multiplication of a Vector by a Scalar -- B.4 Negative Vector -- B.5 Addition of Vectors: Graphical Methods -- B.6 Subtraction of Vectors -- B.7 Addition of More Than Two Vectors -- B.8 Projection of Vectors -- B.9 Resolution of Vectors -- B.10 Unit Vectors -- B.11 Rectangular Coordinates -- B.12 Addition of Vectors: Trigonometric Method -- B.13 Three-Dimensional Components of Vectors -- B.14 Dot (Scalar) Product

	of Vectors -- B.15 Cross (Vector) Product of Vectors -- B.16 Exercise Problems -- Appendix C Calculus -- C.1 Functions -- C.l.l Constant functions -- C1.2 Power functions -- C1.3 Linear functions -- C1.4 Quadratic functions -- C1.5 Polynomial functions -- C1.6 Trigonometric functions -- C1.7 Exponential and logarithmic functions / 365 C.2 The Derivative -- C.2.1 Derivatives of basic functions -- C. 2.2 The constant multiple rule -- C.2.3 The sum rule -- C2.4 The product rule -- C.2.5 The quotient rule -- C.2.6 The chain rule -- C. 2.7 Implicit differentiation -- C.2.8 Higher derivatives / 372 C.3 The Integral -- C.3.1 Properties of indefinite integrals -- C.3.2 Properties of definite integrals -- C.3.3 Methods of integration -- C.4 Trigonometric Identities Problems -- C.5 The Quadratic Formula -- C.6 Exercise Problems.
Sommario/riassunto	Biomechanics applies the principles and rigor of engineering to the mechanical properties of living systems. This book integrates the classic fields of mechanics--statics, dynamics, and strength of materials--using examples from biology and medicine. Fundamentals of Biomechanics is excellent for teaching either undergraduates in biomedical engineering programs or health care professionals studying biomechanics at the graduate level. Extensively revised from a successful first edition, the book features a wealth of clear illustrations, numerous worked examples, and many problem sets. The book provides the quantitative perspective missing from more descriptive texts, without requiring an advanced background in mathematics. It will be welcomed for use in courses such as biomechanics and orthopedics, rehabilitation and industrial engineering, and occupational or sports medicine.