



This best-selling book offers a concise and thorough presentation of engineering mechanics theory and application. The material is reinforced with numerous examples to illustrate principles and imaginative, well-illustrated problems of varying degrees of difficulty. The book is committed to developing its users' problem-solving skills and includes pedagogical features that have made Hibbeler synonymous with excellence in the field. Chapter topics cover general principles, force vectors, equilibrium of a particle, force system resultants, equilibrium of a rigid body, structural analysis, internal forces, friction, center of gravity and centroid, moments of inertia, virtual work, kinematics of a particle, kinetics of a particle: force and acceleration, kinetics of a particle: work and energy, kinetics of a particle: impulse and momentum, planar kinematics of a rigid body, planar kinetics of a rigid body: force and acceleration, planar kinetics of a rigid body: work and energy, planar kinetics of a rigid body: impulse and momentum, three-dimensional kinematics of a rigid body, three-dimensional kinetics of a rigid body, and vibrations. For individuals involved in the study of mechanical/civil/aeronautical engineering.

In this book, all physical laws are derived from a small number of invariant integrals which express the conservation of energy, mass, or momentum. This new approach allows us to unify the laws of theoretical physics, to simplify their derivation, and to discover some novel or more universal laws. Newton's Law of gravity is generalized to take into account cosmic forces of repulsion, Archimedes' principle of buoyancy is modified for account of the surface tension, and Coulomb's Laws for rolling friction and for the interaction of electric charges are substantially repaired and generalized. For postgraduate students, lecturers and researchers.

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