1. Record Nr. UNINA9911034947103321

Autore	Rahmani-Andebili Mehdi
Titolo	General Physics I : Practice Problems, Methods, and Solutions / / by Mehdi Rahmani-Andebili
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-031-92862-8
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (206 pages)
Collana	Physics and Astronomy Series
Disciplina	530.076
Soggetti	Physics Astronomy Mechanics Thermodynamics Physics and Astronomy Classical Mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Vectors and Coordinate Systems -- Inner Product (Dot Product) -- Vector Product (Cross Product) -- Heuristic Approaches -- Linear Kinematics -- Average Velocity -- Relative Motion -- Free Fall and Uniformly Accelerated Motion -- Projectile Motion -- Power -- Linear Dynamics -- Newton’s Laws -- Newton’s Laws on Inclined Surface -- Newton’s Laws in an Elevator -- Centripetal Force -- Momentum -- Position-dependent Force and Potential Energy -- Conservative Force -- Work-energy Theorem -- Conservation of Mechanical Energy Principle -- Spring Force and Hooke's Law -- Collision and Centre of Mass -- Collision -- Centre of Mass and Theorem of Pappus -- Rotational Kinematics and Dynamics -- Rotational Kinematics -- Moment of Inertia -- Parallel Axis Theorem -- Rotational Dynamics -- Rotational Kinetic Energy -- Conservation of Mechanical Energy Principle -- Work-energy Theorem -- Simple Harmonic Motion -- Equations of Motion, Velocity, Acceleration, and Force of a Simple Harmonic Oscillator -- Kinetic, Potential, and Mechanical Energy of a Simple Harmonic Oscillator -- Period and Frequency of a Simple Harmonic Oscillator -- Simple Harmonic Motion: Solutions of Problems

	-- Equations of Motion, Velocity, Acceleration, and Force of a Simple Harmonic Oscillator -- Kinetic, Potential, and Mechanical Energy of a Simple Harmonic Oscillator -- Period and Frequency of a Simple Harmonic Oscillator.
Sommario/riassunto	This essential study guide is designed for students enrolled in a General Physics I college course. The textbook includes problems with detailed solutions to thoroughly teach students the subject matter. It features partially and fully solved exercises and hints to required formulas and answers, enabling students to practice independently while guiding them through problem-solving procedures. The topics covered include vectors and coordinate systems, linear kinematics, linear dynamics, collisions, center of mass, rotational kinematics, rotational dynamics, and simple harmonic motion. With detailed solutions, multiple problem-solving methods, and clear explanations of concepts, this hands-on guide will enhance students' problem-solving skills and foster a solid understanding of General Physics I. Additionally, it serves as a valuable resource for instructors in developing questions, tests, and quizzes.