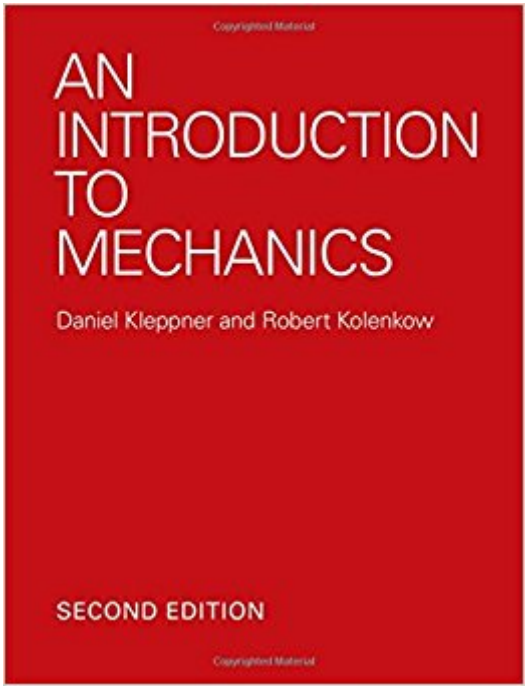
An Introduction To Mechanics



Synopsis

For 40 years, Kleppner and Kolenkow’s classic text has introduced students to the principles of mechanics. Now brought up to date, this revised and improved second edition is ideal for classical mechanics courses for first- and second-year undergraduates with foundation skills in mathematics. The book retains all the features of the first edition, including numerous worked examples, challenging problems and extensive illustrations, and has been restructured to improve the flow of ideas. It now features new examples taken from recent developments, such as laser slowing of atoms, exoplanets and black holes; a ’Hints, Clues and Answers’ section for the end-of-chapter problems to support student learning; and a solutions manual for instructors at www.cambridge.org/kandk.

Book Information

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Customer Reviews

Now brought up to date, this improved second edition is ideal for classical mechanics courses for first- and second-year undergraduates with foundation skills in mathematics. The book retains all the features of the first edition, but with new examples taken from recent developments and a solutions manual for instructors at www.cambridge.org/kandk.

Daniel Kleppner is Lester Wolfe Professor of Physics Emeritus at Massachusetts Institute of Technology. For his contributions to teaching he has been awarded the Oersted Medal by the American Association of Physics Teachers and the Lilienfeld Prize of the American Physical Society. He has also received the Wolf Prize in Physics and the National Medal of Science.Robert

Kolenkow was Associate Professor of Physics at Massachusetts Institute of Technology. Renowned for his skills as a teacher, Kolenkow was awarded the Everett Moore Baker Award for Outstanding Teaching.

Really good textbook! Great practice problems and examples in every single chapter, very wide verity of problems

superb rigorous text for undergraduates for physics-mechanics

the best mechanic text book ever

Awesome as expected

I think this book one of the best books for Introduction to MechanicsI recommend this book to anyone who Love Physics

Great textbook for an second time through mechanics.

This book is precisely what I was looking for mechanics ala Calculus. I love quiet afternoons with a cup of expresso, pencil, paper and this book.

These days I teach physics for a living, but in 1982 I used this book as a freshman in an honors class. Here are some impressions from going back over the book three decades later.For a long time, I don’t think there was any alternative to Kleppner and Kolenkow for a student who really wanted to know the whys and wherefores of freshman mechanics. The big-selling texts like Halliday may carefully derive certain things, but in other cases they just pop an equation onto the page and expect the student to use it without question. Today, however, there are many free, online alternatives to the big-budget commercial texts, and some of these do provide a level of intellectual honesty similar to K&K’s. In addition, there is a recent commercial text by Morin that targets the same type of student as K&K.There are many challenging problems that are of very high quality. The focus of these problems is on symbolic rather than numerical computation.The book includes many topics that are not typically included in a freshman text, e.g., nutation, the moment of inertia tensor, and relativistic four-vectors.The book is designed for highly motivated and talented students,

at schools with highly selective admissions, who have already taken a rigorous high school physics course, and who have already completed about a year of calculus. It would be a disaster to try to use this book with a less highly selected population.The book was originally published in 1973. McGraw-Hill kept it in print over the decades, but hiked the price outrageously and showed no interest in bringing out a new edition. Eventually the authors got the rights back from McGraw-Hill, redid the manuscript in LaTeX, made some changes, and published the 2nd edition in 2010 (37 years after the first edition!) through Cambridge University press. Cambridge brought the price way back down, which is great.The changes made in the second edition are good ones, but they are mostly extremely minimal, and the book still shows its age. There is no discussion of numerical integration of the equations of motion. Attempts are made to help the student check results of symbolic results, e.g., by giving the output for a specific input, but today this would be far better done using open-source computer software such as LON-CAPA. Diagrams show common student lab apparatus from the Sputnik era. (The line art appears to have been redrawn on a computer, but is basically exactly the same.) The book predates essentially all modern pedagogical research in physics, and it does not do any of the things that that research shows can have an impact on common conceptual difficulties.The book was unusual for first-semester freshman texts of its time in providing a fairly thorough introduction to special relativity. This is especially important if the students are to move on to Purcell's Electricity and Magnetism (also available in a new edition from CUP), which assumes a thorough familiarity with SR. Although the treatment of SR has been updated significantly in the second edition, to my taste it is still dreary and slavishly traditional, and compares poorly with the much nicer and more modern approach used in Morin. K&K still use the relativistic mass convention, which professional relativists stopped using ca. 1950. K&K use Einstein's 1905 axiomatization of special relativity, which to my mind reflects a century-old world-view and would be better replaced with an approach based on symmetry, as in Morin. The examples and the presentation of experimental tests of SR have essentially not been updated since the 1973 edition. For example, the old edition presented the concepts of GPS, which was being developed in the 70s. That was cool for its time, but the new edition merely sticks in the modern acronym GPS into the preexisting text. One important improvement is the elimination of ict from the four-vectors, which at least gives the book more of a feel of having been written after 1950.

Materials) Advanced Molecular Quantum Mechanics: An Introduction to Relativistic Quantum Mechanics and the Quantum Theory of Radiation (Studies in Chemical Physics) Computational Fluid Mechanics and Heat Transfer, Third Edition (Series in Computational and Physical Processes in Mechanics and Thermal Sciences) Computational Fluid Mechanics and Heat Transfer, Second Edition (Series in Computional and Physical Processes in Mechanics and Thermal Sciences) Mechanics of Materials (Computational Mechanics and Applied Analysis) Engineering Mechanics: Statics Plus MasteringEngineering with Pearson eText -- Access Card Package (14th Edition) (Hibbeler, The Engineering Mechanics: Statics & Dynamics Series, 14th Edition) Reinforced Concrete: Mechanics and Design (4th Edition) (Civil Engineering and Engineering Mechanics) Fracture and Fatigue Control in Structures: Applications of Fracture Mechanics (Prentice-Hall International Series in Civil Engineering and Engineering Mechanics) Probabilistic fracture mechanics and reliability (Engineering Applications of Fracture Mechanics) Dynamic Fracture Mechanics (Cambridge Monographs on Mechanics) Fracture Mechanics of Concrete: Applications of Fracture Mechanics to Concrete, Rock and Other Quasi-Brittle Materials Quantum Mechanics: Re-engineering Your Life With Quantum Mechanics & Affirmations Introduction to Continuum Mechanics, Fourth Edition Fox and McDonald’s Introduction to Fluid Mechanics Kinetic theory of gases,: With an introduction to statistical mechanics, (International series in physics) Introduction to Thermal Systems Engineering: Thermodynamics, Fluid Mechanics, and Heat Transfer Fox and McDonald’s Introduction to Fluid Mechanics, 9th Edition Introduction to Fluid Mechanics A Brief Introduction to Fluid Mechanics