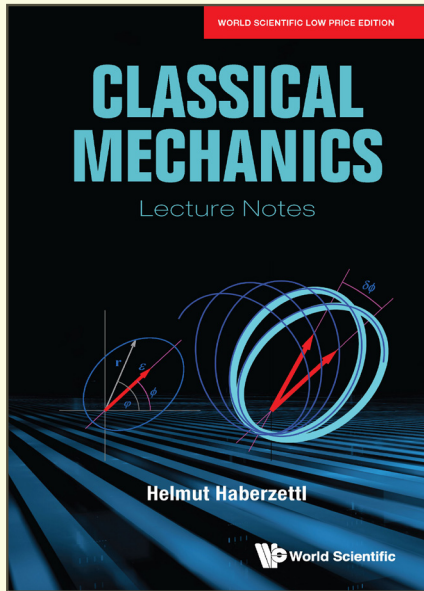


Classical Mechanics

Lecture Notes



By **Helmut Haberzettl**
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ABOUT THE BOOK

This textbook provides lecture materials of a comprehensive course in *Classical Mechanics* developed by the author over many years with input from students and colleagues alike. The richly illustrated book covers all major aspects of mechanics starting from the traditional Newtonian perspective, over Lagrangian mechanics, variational principles and Hamiltonian mechanics, rigid-body, and continuum mechanics, all the way to deterministic chaos and point-particle mechanics in special relativity. Derivation steps are worked out in detail, illustrated by examples, with ample explanations.

Developed by a classroom practitioner, the book provides a comprehensive overview of classical mechanics with judicious material selections that can be covered in a one-semester course thus streamlining the instructor's task of choosing materials for their course. The usefulness for instructors notwithstanding, the primary aim of the book is to help students in their understanding, with detailed derivations and explanations, and provide focused guidance for their studies by repeatedly emphasizing how various topics are tied together by common physics principles.

READERSHIP

Advanced undergraduates and graduates in Physics.

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- Preface
- Newtonian Mechanics
- Lagrangian Mechanics
- Variational Principles
- Hamiltonian Mechanics
- Mechanics of Rigid Bodies
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