

Principles of Thermodynamics

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Abstrak

In this introductory textbook, thermodynamics is presented as a natural extension of mechanics, so that the laws and concepts learned in mechanics serve to get acquainted with the theory. The foundations of thermodynamics are presented in the first part. The second part covers a wide range of applications, which are of central importance in the fields of physics, chemistry and engineering, including calorimetry, phase transitions, heat engines and chemical reactions. In the third part, devoted to continuous media, Fourier and Fick's laws, diffusion equations and many transport effects are derived using a unified approach. Each chapter concludes with a selection of worked examples and several exercises, to reinforce key concepts under discussion. A full solutions manual is available at the end of the book. It contains more than 150 problems based on contemporary issues faced by scientists and engineers that are solved in detail for undergraduate and graduate students.