

CHAPTER OVERVIEW

15: Thermodynamics

Thermodynamics is the branch of science concerned with heat and temperature and their relation to energy and work. It states that the behavior of these quantities is governed by the four laws of thermodynamics, irrespective of the composition or specific properties of the material or system in question. Thermodynamics applies to a wide variety of topics in science and engineering, especially physical chemistry, chemical engineering, and mechanical engineering.

Topic hierarchy

[15.0: Prelude to Thermodynamics](#)

[15.1: The First Law of Thermodynamics](#)

[15.2: The First Law of Thermodynamics and Some Simple Processes](#)

[15.3: Introduction to the Second Law of Thermodynamics - Heat Engines and their Efficiency](#)

[15.4: Carnot's Perfect Heat Engine- The Second Law of Thermodynamics Restated](#)

[15.5: Applications of Thermodynamics- Heat Pumps and Refrigerators](#)

[15.6: Entropy and the Second Law of Thermodynamics- Disorder and the Unavailability of Energy](#)

[15.7: Statistical Interpretation of Entropy and the Second Law of Thermodynamics- The Underlying Explanation](#)

[15.E: Heat and Heat Transfer Methods \(Exercise\)](#)

Thumbnail: The Steam engine and gas and oil engines. By John Perry. 1899. This file is in the public domain because its copyright has expired in the United States.

This page titled [15: Thermodynamics](#) is shared under a [CC BY 4.0](#) license and was authored, remixed, and/or curated by [OpenStax](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.