



HEAT AND THERMODYNAMICS

Dr. Jagendra D. Punde

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About the Author



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Contents

- An Introduction
- The Equation of State of Ideal Gas
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- Laws of Thermodynamics
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- Entropy
- Energy
- Specific Heats

About The Book

Flow of heat that takes place between bodies as they move towards thermal equilibrium? For example, suppose I reproduce one of Fahrenheit's experiments, by taking 100 ccs of water at 100°F, and 100ccs at 150°F, and mix them together in an insulated jug so little heat escapes. What is the final temperature of the mix? Of course, it's close to 125°F—not surprising, but it does tell us something! It tells us that the amount of heat required to raise the temperature of 100 cc of water from 100°F to 125°F is exactly the same as the amount needed to raise it from 125°F to 150°F. A series of such experiments (done by Fahrenheit, Black and others) established that it always took the same amount of heat to raise the temperature of 1 cc of water by one degree, independent of the initial temperature of the water (provided it's between the freezing point and the boiling point).

Thermodynamics is the science of energy, heat, work, entropy and the spontaneity of processes. It is closely related to statistical mechanics from which many thermodynamic relationships can be derived. While dealing with processes in which systems exchange matter or energy, classical thermodynamics is not concerned with the rate at which such processes take place, termed kinetics.



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