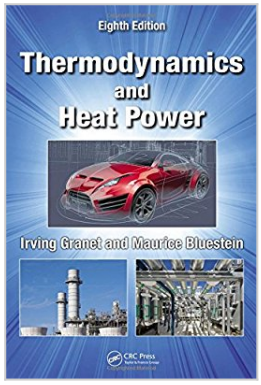

Thermodynamics and Heat Power, Eighth Edition

By Irving Granet, Maurice Bluestein

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Building on the last edition, (dedicated to exploring alternatives to coal- and oil-based energy conversion methods and published more than ten years ago), **Thermodynamics and Heat Power, Eighth Edition** updates the status of existing direct energy conversion methods as described in the previous work. Offering a systems approach to the analysis of energy conversion methods, this text focuses on the fundamentals involved in thermodynamics, and further explores concepts in the areas of ideal gas flow, engine analysis, air conditioning, and heat transfer. It examines energy, heat, and work in relation to thermodynamics, and also explores the properties of temperature and pressures. The book emphasizes practical mechanical systems, and incorporates problems at the end of the chapters to advance the application of the material.

What’s New in the Eighth Edition:

- An emphasis on a systems approach to problems
- More discussion of the types of heat and of entropy
- Added explanations for understanding pound mass and the mole
- Analysis of steady flow gas processes, replacing the compressible flow section
- The concept of paddle work to illustrate how frictional effects can be analyzed
- A clearer discussion of the psychrometric chart and its usage in analyzing air conditioning systems
- Updates of the status of direct energy conversion systems
- A description of how the cooling tower is utilized in high-rise buildings
- Practical automotive engine analysis
- Expanded Brayton cycle analysis including intercooling, reheat, and regeneration and their effect on gas turbine efficiency
- A description of fins and how they improve heat transfer rates
- Added illustrative problems and new homework problems
- Availability of a publisher’s website for fluid properties and other reference

materials
- Properties of the latest in commercial refrigerants

This text presents an understanding of basic concepts on the subject of thermodynamics and is a definitive resource for undergraduate students in engineering programs, most specifically, students studying engineering technology.

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Editorial Review

Review

"The authors have adopted simple yet engaging ways to present and discuss complex concepts of thermodynamics. Solved Illustrative problems are discreetly placed following the explanation of each new concept. The concepts have been introduced from the basic principles and progressively taken to the advanced level."
?Mohammad Hossain, Ph.D., York Technical College, Rock Hill, South Carolina, USA

"Chapter five does a very good job of describing the construction of the p-v-T surface. It also does a very thorough job of defining/describing interpolation and how to use the property tables. ... This chapter has a complete, methodical approach to the often difficult topic of vapor-liquid states and using tabulated data to determine properties."
?Lynn Schlager, University of Wisconsin-Platteville, USA

"The material is presented in a logical order with generous examples to help the student understand the fundamental principles of thermodynamics. ... I have been using the book for the past six years, and used it in the 1990's, and still feel this is the best thermodynamics book for engineering technologists. ...I do not plan on adopting another book."
?Dr. Scott R Giese, University of Northern Iowa, Cedar Falls, USA

"This textbook is written for the thermodynamics course offered in undergraduate engineering programs. There are 11 chapters and two appendices in this book. Chapters 1–7 cover the fundamental aspects of thermodynamics, while Chapters 8–10 deal with applications. Chapter 11 is a brief introduction to heat transfer.... Appendix 1 has the answers to end-of-chapter problems, while Appendix 2 contains supplemental tables of thermodynamic properties."
?*Heat Transfer Engineering*, 1-3, 2016

About the Author

Maurice Bluestein is a professor emeritus of mechanical engineering technology at Indiana University–Purdue University Indianapolis. He has taught for 19 years at the undergraduate and graduate levels, following a 25-year career in the biomedical engineering industry. He received a PhD in biomedical engineering from Northwestern University and an MS and BS in mechanical engineering from New York University and the City College of New York, respectively. He has authored numerous scientific papers and is the co-developer of the Wind Chill Temperature Chart used by the weather services of the United States and Canada.

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