BOOK REVIEW

J. P. Todd and H. B. Ellis, **An Introduction to Thermodynamics for Engineering Technologists.** John Wiley, 1981, 469pp, £11.75.

This introductory textbook has been written with the intention to present clearly the basic principles and equations of Thermodynamics, relevant to current industrial and scientific applications, and to provide an adequate background for more advanced studies.

The book is organised in a conventional manner. It consists of 14 Chapters, with the following headings:

1. Introduction
2. Properties of Thermodynamic Substances
3. The Equivalence of Work and Heat
4. Introduction to Heat Engines
5. Availability of Energy
6. Characteristics and Parameters of Gases
7. Perfect Gas Process
8. Two-Phase Processes
9. Power-Producing Heat Engine Cycles
10. Heat-Pumping Cycles
11. Thrust-Producing Cycles
12. Psychrometry
13. Heat Transfer Principles
14. Applications of Heat Transfer

There are five Appendices:

A. Thermodynamic Data
B. Heat Transfer Data
C. Conversion Factors
D. Interpolation and Problem Solving
E. Mathematical Tables

References, Answers to selected problems and a well-organised index close the book. The text is both well written and well structured, clearly a benefit from the long experience of the authors in the teaching of undergraduate students. Calculus is not required and SI units are used throughout.

The cover art and text design are very good and the book is well printed and illustrated, agreeable to look at and to handle. Sufficient text separates the formulae and worked examples to make the book easy and pleasant to read.

The authors appear to hold the view, that an engineering student needs to be introduced to the practice of his profession via the routes of logic and algebra, and have stressed the importance of judgment in selecting the approach to a given problem. So, appreciable space has been devoted to the presentation of examples and applications, which both reflect the subject matter of the text and relate to engineering problems. Furthermore, an Appendix is devoted to suggesting a useful methodology for problem solving.

Although the present reviewer appreciates the authors effort to emphasise the engineering content of a course in Thermodynamics, he feels that in the process some of the equally important rigor in developing the subject has been lost.

It is equally important that an engineering Technologist understands differential equations and their implications, as well as being equipped with a suitable package of formulae. A cyclic integral to represent symbolically the First Law would not necessarily make the book difficult to follow, but would certainly highlight the implications of this Law to the full; and a definition of entropy based on system changes is certainly better than the statement that it is "an abstract thermodynamic property of a substance that can be evaluated only by calculation". This reservation excepted, the reviewer thinks that the book should prove a useful first text for students and others who wish to acquire an understanding of basic thermodynamics. Its reasonable price, £11.75, makes this book good value.

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