

1. Record Nr.	UNINA9910965668803321
Autore	Kraus Allan D.
Titolo	Introduction to thermal and fluid engineering / / by Allan D. Kraus, James R. Welty and Abdul Aziz
Pubbl/distr/stampa	Boca Raton, FL : , : CRC Press, an imprint of Taylor and Francis, , 2011
ISBN	9781040161470 1040161472 9780429098796 0429098790 9781466503212 1466503211
Edizione	[First edition.]
Descrizione fisica	1 online resource (968 p.)
Collana	Heat Transfer : A Series of Reference Books and Textbooks
Classificazione	MTA 300f MTA 600f UF 4500
Disciplina	621.402/1
Soggetti	Thermodynamics Fluid dynamics Heat - Transmission Fluid mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front Cover; Dedication; Contents; Preface; 1. The Thermal/Fluid Sciences: Introductory Concepts; 2. Thermodynamics: Preliminary Concepts and Definitions; 3. Energy and the First Law of Thermodynamics; 4. Properties of Pure, Simple Compressible Substances; 5. Control Volume Mass and Energy Analysis; 6. The Second Law of Thermodynamics; 7. Entropy; 8. Gas Power Systems; 9. Vapor Power and Refrigeration Cycles; 10. Mixtures of Gases, Vapors, and Combustion Products; 11. Introduction to Fluid Mechanics; 12. Fluid Statics; 13. Control Volume Analysis-Mass and Energy Conservation 14. Newton's Second Law of Motion 15. Dimensional Analysis and Similarity; 16. Viscous Flow; 17. Flow in Pipes and Pipe Networks; 18.

Fluid Machinery; 19. Introduction to Heat Transfer; 20. Steady-State Conduction; 21. Unsteady-State Conduction; 22. Forced Convection-Internal Flow; 23. Forced Convection-External Flow; 24. Free or Natural Convection; 25. Heat Exchangers; 26. Radiation Heat Transfer; Appendix A: Tables and Charts; Appendix B: Summary of Differential Vector Operations in Three Coordinate Systems; References and Additional Readings; Nomenclature

Sommario/riassunto

Introduction to Thermal and Fluid Engineering combines coverage of basic thermodynamics, fluid mechanics, and heat transfer for a one- or two-term course for a variety of engineering majors. The book covers fundamental concepts, definitions, and models in the context of engineering examples and case studies. It carefully explains the methods used to evaluate changes in equilibrium, mass, energy, and other measurable properties, most notably temperature. It then also discusses techniques used to assess the effects of those changes on large, multi-component systems in areas ranging from mechanical, civil, and environmental engineering to electrical and computer technologies.
