Record Nr. UNINA9910811868003321

Autore Kraus Allan D.

Titolo Introduction to thermal and fluid engineering / / by Allan D. Kraus,

James R. Welty and Abdul Aziz

Boca Raton, FL:,: CRC Press, an imprint of Taylor and Francis,, 2011 Pubbl/distr/stampa

0-429-09879-0 **ISBN**

1-4665-0321-1

Edizione [First edition.]

Descrizione fisica 1 online resource (968 p.)

Heat Transfer: A Series of Reference Books and Textbooks Collana

Classificazione MTA 300f

> MTA 600f UF 4500

621.402/1 Disciplina

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 Motion15. 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

Sommario/riassunto

Vector Operations in Three Coordinate Systems; References and Additional Readings; Nomenclature

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.