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Nota di contenuto	Heat Conduction; Contents; Preface; Preface to Second Edition; Chapter 1 Heat Conduction Fundamentals; 1-1 The Heat Flux; 1-2 Thermal Conductivity; 1-3 Differential Equation of Heat Conduction; 1-4 Fourier's Law and the Heat Equation in Cylindrical and Spherical Coordinate Systems; 1-5 General Boundary Conditions and Initial Condition for the Heat Equation; 1-6 Nondimensional Analysis of the Heat Conduction Equation; 1-7 Heat Conduction Equation for Anisotropic Medium; 1-8 Lumped and Partially Lumped Formulation; References; Problems Chapter 2 Orthogonal Functions, Boundary Value Problems, and the Fourier Series 2-1 Orthogonal Functions; 2-2 Boundary Value Problems; 2-3 The Fourier Series; 2-4 Computation of Eigenvalues; 2-5 Fourier Integrals; References; Problems; Chapter 3 Separation of Variables in the Rectangular Coordinate System; 3-1 Basic Concepts in the Separation of Variables Method; 3-2 Generalization to Multidimensional Problems; 3-3 Solution of Multidimensional Homogenous Problems; 3-4 Multidimensional Nonhomogeneous Problems: Method of Superposition; 3-5 Product Solution; 3-6 Capstone Problem; References

ProblemsChapter 4 Separation of Variables in the Cylindrical Coordinate System; 4-1 Separation of Heat Conduction Equation in the Cylindrical Coordinate System; 4-2 Solution of Steady-State Problems; 4-3 Solution of Transient Problems; 4-4 Capstone Problem; References; Problems; Chapter 5 Separation of Variables in the Spherical Coordinate System; 5-1 Separation of Heat Conduction Equation in the Spherical Coordinate System; 5-2 Solution of Steady-State Problems; 5-3 Solution of Transient Problems; 5-4 Capstone Problem; References; Problems; Notes
Chapter 6 Solution of the Heat Equation for Semi-Infinite and Infinite Domains6-1 One-Dimensional Homogeneous Problems in a Semi-Infinite Medium for the Cartesian Coordinate System; 6-2 Multidimensional Homogeneous Problems in a Semi-Infinite Medium for the Cartesian Coordinate System; 6-3 One-Dimensional Homogeneous Problems in An Infinite Medium for the Cartesian Coordinate System; 6-4 One-Dimensional homogeneous Problems in a Semi-Infinite Medium for the Cylindrical Coordinate System; 6-5 Two-Dimensional Homogeneous Problems in a Semi-Infinite Medium for the Cylindrical Coordinate System
6-6 One-Dimensional Homogeneous Problems in a Semi-Infinite Medium for the Spherical Coordinate SystemReferences; Problems; Chapter 7 Use of Duhamel's Theorem; 7-1 Development of Duhamel's Theorem for Continuous Time-Dependent Boundary Conditions; 7-2 Treatment of Discontinuities; 7-3 General Statement of Duhamel's Theorem; 7-4 Applications of Duhamel's Theorem; 7-5 Applications of Duhamel's Theorem for Internal Energy Generation; References; Problems; Chapter 8 Use of Green's Function for Solution of Heat Conduction Problems
8-1 Green's Function Approach for Solving Nonhomogeneous Transient Heat Conduction

Sommario/riassunto

"This book supplies the long awaited revision of the bestseller on heat conduction, replacing some of the coverage of numerical methods with content on micro- and nano-scale heat transfer. Extensive problems, cases, and examples have been thoroughly updated, and a solutions manual is available"--
