

1. Record Nr.	UNINA9911006640403321
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Titolo	Mathematical Methods in Physics and Engineering
Pubbl/distr/stampa	Newburyport, : Dover Publications, 2013
ISBN	1-5231-2509-8 0-486-16936-7
Edizione	[1st ed.]
Descrizione fisica	1 online resource (722 p.)
Collana	Dover Books on Physics
Disciplina	510
Soggetti	Engineering -- Mathematics Engineering mathematics Mathematics Engineering Physical Sciences & Mathematics Mathematics - General
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Title Page; Copyright Page; Preface; Table of Contents; Chapter 1. Linear Algebra; 1.1 Linear Equations. Summation Convention; 1.2 Matrices; 1.3 Determinants; 1.4 Systems of Linear Algebraic Equations. Rank of a Matrix; 1.5 Vector Spaces; 1.6 Scalar Product; 1.7 Orthonormal Basis. Linear Transformations; 1.8 Quadratic Forms. Hermitian Forms; 1.9 Systems of Ordinary Differential Equations. Vibration Problems; 1.10 Linear Programming; Chapter 2. Hilbert Spaces; 2.1 Infinite-dimensional Vector Spaces. Function Spaces; 2.2 Fourier Series; 2.3 Separable Hilbert Spaces; 2.4 The Projection Theorem 2.5 Linear Functionals 2.6 Weak Convergence; 2.7 Linear Operators; 2.8 Completely Continuous Operators; Chapter 3. Calculus of Variations; 3.1 Maxima and Minima of Functions. Lagrange Multipliers; 3.2 Maxima and Minima of Functionals. Euler's Equation; 3.3 Hamilton's Principle. Lagrange's Equations; 3.4 Theory of Small Vibrations; 3.5 The Vibrating String; 3.6 Boundary-value Problems of Mathematical Physics; 3.7 Eigenvalues and Eigenfunctions; 3.8 Eigenfunction Expansions; 3.9 Upper and Lower Bounds for Eigenvalues; Chapter 4. Boundary-value

Problems. Separation of Variables

4.1 Orthogonal Coordinate Systems. Separation of Variables 4.2 Sturm-Liouville Problems; 4.3 Series Solutions of Ordinary Differential Equations; 4.4 Series Solutions of Boundary-value Problems; Chapter 5. Boundary-value Problems. Green's Functions; 5.1 Nonhomogeneous Boundary-value Problems; 5.2 One-dimensional Green's Functions; 5.3 Generalized Functions; 5.4 Green's Functions in Higher Dimensions; 5.5 Problems in Unbounded Regions; 5.6 A Problem in Diffraction Theory; Chapter 6. Integral Equations; 6.1 Integral-equation Formulation of Boundary-value Problems; 6.2 Hilbert-Schmidt Theory 6.4 Integral Equations of the First Kind Chapter 7. Analytic Function Theory; 7.1 Introduction; 7.2 Analytic Functions; 7.3 Elementary Functions; 7.4 Complex Integration; 7.5 Integral Representations; 7.6 Sequences and Series; 7.7 Series Representations of Analytic Functions; 7.8 Contour Integration; 7.9 Conformal Mapping; 7.10 Potential Theory; Chapter 8. Integral Transform Methods; 8.1 Fourier Transforms; 8.2 Applications of Fourier Transforms. Ordinary Differential Equations; 8.3 Applications of Fourier Transforms. Partial Differential Equations 8.4 Applications of Fourier Transforms. Integral Equations 8.5 Laplace Transforms. Applications; 8.6 Other Transform Techniques; Index; A CATALOG OF SELECTED DOVER BOOKS IN ALL FIELDS OF INTEREST

Sommario/riassunto

Intended for college-level physics, engineering, or mathematics students, this volume offers an algebraically based approach to various topics in applied math. It is accessible to undergraduates with a good course in calculus which includes infinite series and uniform convergence. Exercises follow each chapter to test the student's grasp of the material; however, the author has also included exercises that extend the results to new situations and lay the groundwork for new concepts to be introduced later. A list of references for further reading will be found at the end of each chapter. For t
