

# MATHEMATICS

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R. K. Jain, S. R. K. Iyengar

TEXTBOOK

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Editor: S. Lakshmi

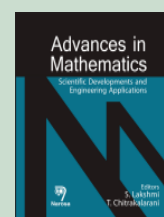
NEW

Basic sciences are the roots of applied sciences. Mathematics explores the universe by certain laws. Further advances in Mathematics would be imminent for the world to understand the beautiful universe it is the part of in a better way. Mathematics is the subject that is capable to contribute to every aspect of life. We cannot move a single inch without the governance of Mathematics. Mathematics is not only set to make our world more interesting to live, but it can show its potential to transform the whole universe more lively and beautiful for us. An understanding of the Scientific Developments and Engineering Applications of Mathematics are to know how this discipline can contribute to technology to scale new heights.

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NEW

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NEW

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Amritasu Sinha

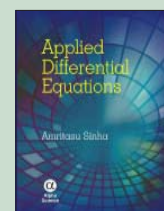
NEW

TEXTBOOK

*Applied Differential Equations* discusses the Legendre and Bessel Differential equations and its solutions. Various properties of Legendre Polynomials as well as Legendre function and Bessel functions in part one. The second order Partial Differential equation of three types is studied and the technique to solve with the Separation of Variables technique called Fourier's Method have been discussed in the second part. In the Appendix some applications of the Heat Equation are discussed to Model the Environment.

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Bhola Ishwar

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## Classical Mechanics: A Textbook

Suresh Chandra

TEXTBOOK

*Classical Mechanics* beginning with the elementary principles introduces the generalised coordinates, Lagrangian formulation and Hamiltonian Formulation and the Central Force used for derivation of Kepler's laws of planetary motion. The topic on Small Oscillations is introduced and applied for a number of systems. Rotational motion for a Rigid-body and High speed (relativistic) motions are discussed under Special Relativity. Finally, the four vectors, four velocity, four momentum etc. are also discussed.

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## Combinatorial and Computational Mathematics

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Editors: N. M. Shikare, B. N. Waphare

Audience: Teachers & Researchers

2004 235 pp. 39Figs. 13TbIs. 160 x 240 650g Hb ISBN: 978-81-7319-560-0 £ 45.00 / US\$ 110.00

## Combinatorial Optimization: Some Aspects

Editors: Rita Malhotra, C. S. Lalitha, Pankaj Gupta, Aparna Mehra, Sonia

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V. Karunakaran

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## Complex Manifolds and Contact Manifolds

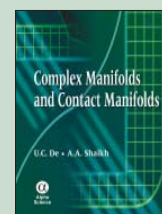
U.C. De, A. A. Shaikh

TEXTBOOK

*Complex Manifolds and Contact Manifolds* discusses the theory of almost complex manifolds, almost Hermite manifolds, Kahler manifolds, nearly Kahler manifolds, para-Kahler manifolds, contact manifolds K-contact manifolds, Sasakian manifolds and LP-Sasakian manifolds. The global treatment of coordinate free method is followed to derive the results. Each concept is explained as lucidly as possible.

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*Mukut Mani Tripathi*

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## A Course in Mechanics

*Naveen Kumar*

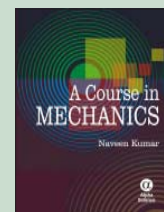
NEW

TEXTBOOK

A COURSE IN MECHANICS starts with the basic elements of mechanics: force, equilibrium of forces and motion followed by inter-relationships between them. From conditions of equilibrium of one force on one particle to those for system of forces in three dimensions along with the stability of equilibrium are thoroughly presented. Some special types of motion of an object based on Newton's law of motion in Cartesian, polar and intrinsic two dimensional frames comprise major portion of the book. Motion of an object as well as of rigid body in a rotating space like the Earth in addition to the rigid body motion based on D'Alembert's principle is also covered in the book.

Audience: Undergraduate – Postgraduate Students and Researchers in Mathematics

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## A Course in Ordinary Differential Equations

*B. Rai, D. P. Choudhury, H. I. Freedman*

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Audience: Under & Postgraduate Students

2002 480 pp. 43Figs. 180 x 240 1100g Hb ISBN: 978-1-84265-068-4 £ 39.95 / US\$ 79.95

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# MATHEMATICS

## A Course in Real Analysis

Mainak Mukherjee

FORTHCOMING

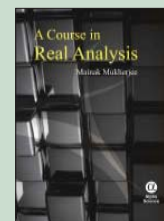
TEXTBOOK

Important topics of undergraduate analysis is covered with no prerequisite necessary. All concepts are explained through large number of solved examples and with motivation. A good number of thoughts provoking exercises have been included so that student can master the ideas and concept given. Exhaustive Bibliography has been added for further reading on the subject.

Audience: Undergraduate Students in Mathematics

2011 452 pp. 185 x 240 Hb ISBN: 978-1-84265-389-0

£ 39.95 / US\$ 79.95



## A Course of Applied Mathematics for Engineers and Physicists

Marietta Manolessou

FORTHCOMING

TEXTBOOK

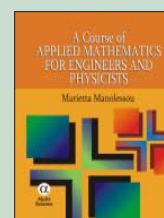
*A Course of Applied Mathematics for Engineers and Physicists* attempts a synthesis between the various theoretical concepts with the tools and techniques useful to the engineer, aiming at an equilibrium between mathematical rigour and a practical point of view with applications in mind. The main topics discussed are:

- Linear and non linear Algebra
- Topology (Topological and Metric spaces, Convexity Connexity, Orthogonal Projection in Hilbert spaces, etc.)
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Audience: Undergraduate and Graduate Students of Mathematics, Physics & Engineering

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£ 27.50 / US\$ 52.50



## A Course on Classical Mechanics

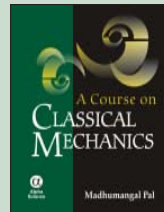
Madhumangal Pal

TEXTBOOK

CONTENTS: Preface / Fundamentals of Mechanics / Rotating Frames of Reference / The Lagrangian and Hamiltonian Formulations / Motion of a Rigid Body / Variational Principles / Canonical Transformations / Brackets / Hamilton-Jacobi Equation / Small Oscillations / Special Theory of Relativity / Bibliography / Index.

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## Cryptography, Automata and Learning Theory

Editors: D. Gnanaraj Thomas, P. Abisha Jeyanthi

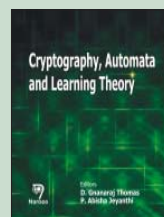
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TEXTBOOK

Cryptography is the art and science of ensuring secrecy and security of data. On the other hand, learning theory deals with inferring an unknown concept with partial information. Applications of automata and formal languages in the fields of cryptography and learning theory are of current interest and research. The book on Cryptography, Automata and Learning Theory focuses on the recent trends on these three main areas of research which have strong theoretical foundation with more practical applications.

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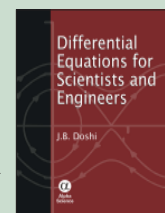
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## Differential Equations for Scientists and Engineers

J. B. Doshi

NEW

TEXTBOOK



*Differential Equations for Scientists and Engineers* proposes to give a comprehensive treatment of differential equations encountered by scientists and engineers in various problems during their professional career. The book mainly deals with linear equations amenable to the so called analytical or exact solutions (including series solutions). However, exactly solvable nonlinear equations are covered briefly in the chapter on ordinary differential equations. A couple of chapters are included to deal with semi-analytical techniques, such as variational and other methods to deal with equations not solvable analytically. A chapter on nonlinear equations with modern treatment of first and second order systems including the concepts of bifurcations and limit cycles is included at the end. More advanced topics such as, the quasi-periodic motion and chaos are not included in the book. Throughout the book the emphasis is on the development and applications of solution techniques and the theoretical aspects regarding the existence and uniqueness of solutions are avoided or very briefly discussed with short proofs without disturbing the flow of the text.

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Editor: M. Sethumadhavan

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Rakesh Dube, Adesh Pandey, Ritu Gupta

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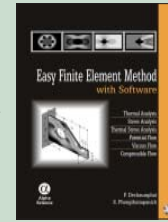
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## Easy Finite Element Method *with Software*

*Pramote Dechaumphai, Sutthisak Phongthanapanich*

TEXTBOOK



Easy Finite Element Method *with Software* explains fundamentals of the finite element method so that it is easy to understand. The book includes a finite element color graphics software which is simple to use on personal computers or notebooks. The finite element theory described in the book together with the accompanied software can help beginners to understand the entire process of the method quickly.

The book presents the use of the method for analyzing problems in different disciplines. These include: (a) thermal, (b) stress, (c) thermal stress, (d) potential flow, (e) viscous flow, and (f) high-speed compressible flow problems. Their differential equations, finite element equations and matrices are presented. The accompanied software, EasyFEM, was developed for beginners who had little or no background on using a finite element software. The software combines both the color graphics visualization and the finite element analyzer.

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*T. Amaranath*

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*Shashishekar Shivaswamy*

NEW

TEXTBOOK



*Finite Element Analysis* is a widely used technique in many engineering disciplines. Implementing the principles of FEA through programming is crucial for a thorough understanding of the subject. In this book, the concepts of FEA and its programming is illustrated uniquely in a transparent manner using the math package MATHCAD. The details in programming, with solution at various intermediate stages, are discussed for numerous elements with fully functional codes. Programs in Microsoft Excel using VBA are also presented. The book provides many challenging problems and programming assignments.

**Audience:** Under- and Postgraduate Students in Mathematics,  
Under- and Postgraduate Students & Practitioners in Civil, Mechanical & Aerospace Engineering

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## Finite Element Method for Engineers: *From Theory to Practice*

*C. V. Girija Vallabhan, Mehmet Zulfu Asik*

FORTHCOMING

TEXTBOOK



*Finite Element Method for Engineers: From Theory to Practice* while emphasizing problems in solid mechanics with examples of flow problems, explains the theory in four fundamental steps alongwith a flow chart that is used for all finite element computer programs. The theory is presented using energy principles in solid mechanics and towards the end, the methodology is explained using the well known Galerkin theory so that the method can be extended to solve even differential equations.

**Audience:** Senior Undergraduate and Graduate Students, Researchers and Professionals in Mechanical, Civil & Aerospace Engineering

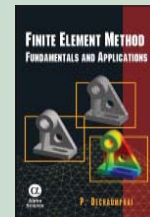
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## Finite Element Method: *Fundamentals and Applications*

*Pramote Dechaumphai*

NEW

TEXTBOOK



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**Audience:** Undergraduate and Graduate Students in Aeronautical, Mathematics, Civil, Chemical & Mechanical Engineering and Practicing Engineers

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## A First Course in Algebraic Topology, Second Edition

*B. K. Lahiri*

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# MATHEMATICS

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*D. Somasundaram, B. Choudhary*

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Audience: Undergraduate & Postgraduate Students

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*S. Ponnusamy*

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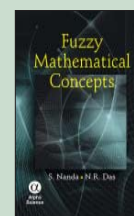
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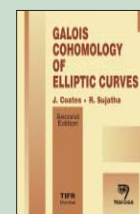
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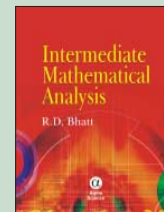
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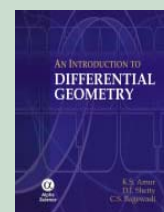
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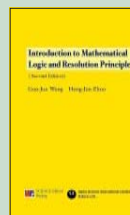
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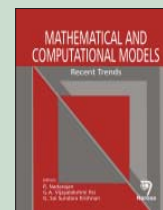
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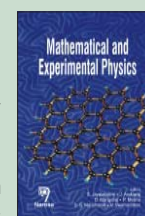
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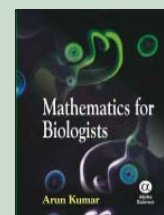
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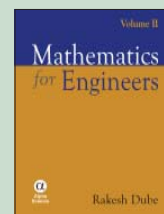
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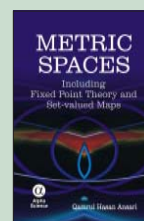
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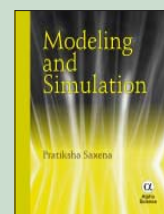
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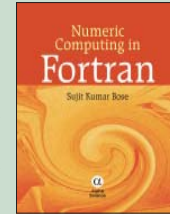
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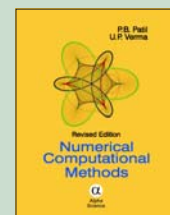
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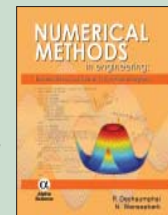
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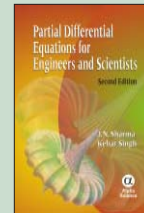
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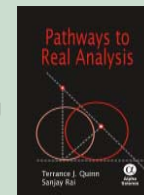
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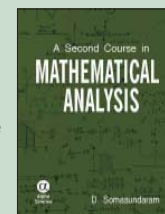
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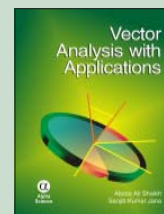
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