Universities Press

Universities Press focusses on the publication of books in Science, Technology and Medicine.

In addition to independent publishing, we have collaborated with reputed organisations such as:

- Indian Academy of Sciences
- Jawaharlal Nehru Centre for Advanced Scientific Research
- Indian National Science Academy
- Indian Space Research Organisation
- Ramanujan Mathematical Society
- Indian Association for Research in Computing Sciences
- American Mathematical Society
- Indian Institute of Metals/Indira Gandhi Centre for Atomic Research

Several of our books have been co-published for the international market by CRC Press and Springer Verlag. In addition to original publishing, we publish books selectively under license from reputed overseas publishers. Some of our overseas associates include:

- CRC Press
- Silicon Press
- American Mathematical Society

Our books are distributed exclusively by **Orient Blackswan Private Limited.**

Invitation to authors

If you have a publishing proposal in your area of specialisation, we will be happy to hear from you. The publication proposal form can be accessed from our website www.universitiespress.com. Alternatively, you may please write to:

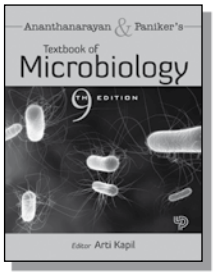
The Editorial Department
Universities Press (India) Private Limited
3-6-747/1/A and 3-6-754/1 Himayatnagar
Hyderabad 500 029, Telangana, India
Phone: 91-40-2766 2849/2850/5446/5447, 2761 0898
Fax: 91-40-2764 5046
Email: info@universitiespress.com

Contents

BIOTECHNOLOGY

Ananthanarayan and Paniker's Textbook of Microbiology
(Ninth Edition)

Arti Kapil (Ed.)
Professor, Department of Microbiology, All India Institute of Medical Sciences, New Delhi, India



This famous textbook was conceived in the early 1970s by two of the renowned Indian educators and professors of Microbiology. The first edition, published in 1978, was a masterpiece of clarity and uniformity of style. Although the format and presentation have seen many changes in the eight subsequent editions, the authors' original vision and objectives remain. More than three and a half decades after its first publication, the book continues to inform and educate students and teachers.

The ninth edition has been completely updated and revised. In accordance with advances in the field, the sections on Immunology, Mycology and Clinical Microbiology have been given due prominence. To better prepare students for clinical situations, case studies, approach to treating common diseases and algorithms and flowcharts have been included. Practice questions that mirror those that frequently appear in examinations have been provided at the end of every chapter.

The presentation and layout has been tailored to help students absorb information quickly, as greater demands are placed on their time. Illustrations and photographs have been improved to enable ease of learning and retention of information.

Contents: *Part I:* General Microbiology: ◆ Introduction and Bacterial Taxonomy ◆ Morphology and Physiology of Bacteria ◆ Sterilisation and Disinfection ◆ Culture Media ◆ Culture Methods ◆ Identification of Bacteria ◆ Bacterial Genetics ◆ *Part II:* Immunology: Infection ◆ Immunity ◆ Antigens ◆ Antibodies—Immunoglobulins ◆ Antigen–Antibody Reactions ◆ Complement System ◆ Structure and Functions of the Immune System ◆ Immune Response ◆ Hypersensitivity ◆ Immunodeficiency Diseases ◆ Autoimmunity ◆ Immunology of Transplantation and Malignancy ◆ Immunohematology ◆ *Part III:* Bacteriology ◆ Staphylococcus ◆ Streptococcus ◆ Streptococcus Pneumoniae ◆ Neisseria ◆ Corynebacterium ◆ Bacillus ◆ Anaerobic Bacteria I: Clostridium ◆ Anaerobic Bacteria II: Non-sporing Anaerobes ◆ Enterobacteriaceae I: Coliforms–Proteus ◆ Enterobacteriaceae II: Shigella ◆ Enterobacteriaceae III: Salmonella ◆ Vibrio ◆ Pseudomonas ◆ Yersinia, Pasteurella, Francisella ◆ Haemophilus ◆ Bordetella ◆ Brucella ◆ Mycobacterium I: M.tuberculosis ◆ Mycobacterium II: Non-Tuberculous Mycobacteria (NTM) ◆ Mycobacterium III: M.leprae ◆ Spirochetes ◆ Mycoplasma ◆ Actinomycetes ◆ Miscellaneous Bacteria ◆ Rickettsiaceae ◆ Chlamydiae ◆ *Part IV:* Virology ◆ General Properties of Viruses ◆ Virus–Host Interactions: Viral Infections ◆ Bacteriophages ◆ Poxviruses ◆ Herpesviruses ◆ Adenoviruses ◆ Picornaviruses ◆ Orthomyxoviruses ◆ Paramyxoviruses ◆ Arboviruses ◆ Rhabdoviruses ◆ Hepatitis Viruses ◆ Miscellaneous Viruses ◆ Oncogenic Viruses ◆ Human Immunodeficiency Virus: AIDS ◆ *Part V:* Medical Mycology ◆ General Aspects ◆ Superficial and Subcutaneous Mycoses ◆ Systemic and Opportunistic Mycoses ◆ *Part VI:* Applied Microbiology ◆ Normal Microbial Flora of the Human Body ◆ Bacteriology of Water, Air, Milk and Food ◆ Laboratory Control of Antimicrobial Therapy ◆ Immunoprophylaxis ◆ Healthcare-associated Infections ◆ Biomedical Waste Management ◆ Emerging and Re-emerging Infections ◆ Recent Advances in Diagnostic Microbiology ◆ *Part VII:* Clinical Microbiology ◆ Bloodstream Infections ◆ Respiratory Tract Infections ◆ Meningitis ◆ Urinary

Tract Infections ◆ Sexually Transmitted Infections ◆ Diarrhea and Food Poisoning ◆ Skin and Soft Tissue Infections ◆ Pyrexia of Unknown Origin ◆ Zoonoses ◆ *Further Reading* ◆ *Index*

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2013	720 pp.	Paperback
978-81-7371-889-2		₹ 775.00

Bioinformatics and Bioprogramming In C

L N Chavali
Visiting faculty, Osmania University, Hyderabad

With the flood of information originating from genome sequencing projects, biology is being transformed from a laboratory-based science into an information science. Now, a stage has been reached where students and scholars of biology cannot study or carry out research in biology without using the tools of computers and bioinformatics—tools which an ordinary biologist may not be proficient in.

This book is designed to introduce C language to the biology, biochemistry, microbiology and biotechnology community as a tool for solving biological problems. To help in understanding the concepts, most of the terminology used is biocentric and the programs written help in real-life problems like gene sequence analysis and prediction. It moves gradually from simple ideas to more complex programming concepts, thus equipping the reader to comprehend the case studies on dynamic programming and PAM matrices included at the end.

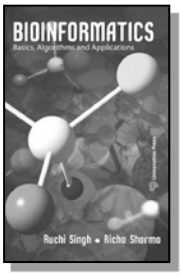
Contents: *Foreword* ◆ *Preface* ◆ *Acknowledgements* ◆ *Introduction* ◆ Basic Terminology ◆ Operators ◆ Statements and Control Flow ◆ Functions ◆ Character Input and Output ◆ Arrays ◆ Pointers ◆ Structures ◆ Files ◆ Data Structures ◆ Case Studies ◆ *Appendix* ◆ *Index*

2009	224 pp.	Paperback
978-81-7371-648-5		₹ 295.00

Bioinformatics: Basics, Algorithms and Applications

Ruchi Singh
Lecturer, Department of Bioinformatics, SRM University, Chennai

Richa Sharma
Professor and Head of Department, Department of Information Science and Engineering, The Oxford College of Engineering, Bangalore



Bioinformatics has been recognised and studied as a separate discipline only in the last decade. Being a multidisciplinary subject it requires knowledge of several subjects, such as molecular biology, biochemistry, computer science and others. Students in a bioinformatics course are from different academic backgrounds; those who have studied biology (i.e., botany, zoology, biochemistry, microbiology, etc.), will require an introduction to mathematics and computer science, while those with a background in physics, chemistry and mathematics will need explanations of biological principles.

This book provides a simple and concise explanation of the basic principles, tools and applications of bioinformatics. It explains

- subjects that are part of a conventional bioinformatics course, such as databases, database access and analyses tools
- principles of computer science that underlie the algorithms which are built into these tools.
- core algorithms of sequence analyses and phylogeny construction.

Starting with a brief overview of biological terminology used frequently in bioinformatics, the contents are grouped into five sections:

- bioinformatics and algorithms
- databases and matrices
- alignment and comparison of sequences
- algorithms to analyse data
- applications of bioinformatics

The book has been planned and structured as an undergraduate textbook for the one-semester foundation course in bioinformatics. In order to make the book more useful for a wider section

of students and teachers, the book has been kept concise and relevant, at the same time covering all important aspects. Care has been taken to design the algorithms such that even beginners can understand them without difficulty.

Contents: *Getting Started* ◆ *Introduction* ◆ Introduction to bioinformatics ◆ Introduction to algorithms ◆ Databases and Matrices ◆ Biological databases ◆ Database searching ◆ Scoring matrices ◆ Sequence Alignment ◆ Pairwise sequence alignment ◆ Multiple sequence alignment ◆ Phylogenetic analysis ◆ Other Bioinformatics Algorithms ◆ Basic algorithms ◆ Graph algorithm ◆ String algorithm ◆ Applications of Bioinformatics ◆ Transcriptomics ◆ Metabolomics ◆ Pharmacogenomics ◆ Combinatorial synthesis ◆ Genomics ◆ Proteomics ◆ *Bibliography* ◆ *Index*

2010	272 pp.	Paperback
978-81-7371-713-0		₹ 295.00

Cell Biology

Channarayappa
Professor and Head, M S Ramaiah Institute of Technology, Bengaluru, India

Cell Biology covers one of the most fundamental and elaborately studied areas of biology: the cell. The cell is the basic unit of life and has all the structural and functional properties required for life. *The book has been divided into 20 chapters—beginning with the origin of biological systems and ending with tools for the study of cells*. Every effort has been made to include the most recent information. Each chapter is provided with an adequate number of illustrations.

This book can serve as a basic textbook for students of molecular biology, genetics, biochemistry, agriculture and biotechnology, or as a reference book for those interested in learning the fundamentals of cell biology, in particular, the origin, organisation and functions of subcellular components and cell types.

Contents: Origin of Biological Systems ◆ Atomic Basis of Life ◆ Biomolecules ◆ Prokaryotic Cells ◆ Eukaryotic Cells ◆ Biological Membranes ◆ Mitochondria: Powerhouse of the Cell ◆ Plastids: Food Factory of the Cell ◆ Cell Division: Propagation of Genetic Information ◆ Cell Signalling ◆ Sensory Signalling ◆ Differentiation and Development ◆ Building Multicellular Organisms ◆ Cytoskeleton and Cell Motility ◆ Growth, Sexual Reproduction and Ageing ◆ Cell Death and Cell Renewal ◆ Plant Growth and Development ◆ Immune Response ◆ Non-Cellular Life Forms ◆ Tools for the Study of Cells ◆ *Index*

2010	624 pp.	Paperback
978-81-7371-716-1		₹ 975.00

Concepts in Biotechnology

D Balasubramanian, C F A Bryce,K Dharmalingam, J Green & Kunthala Jayaraman (Eds)

The book covers the fundamental principles and concepts in biotechnology which form the basis for the subject and illustrates their applications in selected areas such as health care, agriculture, animal systems, bioprocess technologies and environmental aspects. This textbook is the outcome of a COSTED-IBN project on curriculum development in biotechnology for undergraduate study. It is designed to provide a strong base in this emerging, interdisciplinary are which holds great promise for economic development. This revised edition incorporates two new chapters on biotechnology in food and beverage production and environmental biotechnology.

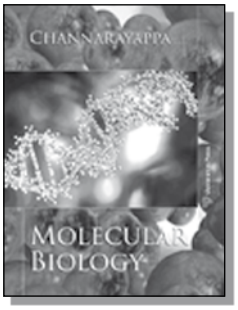
Contents: *About ICSU and COSTED-IBN* ◆ *Preface to the Second Edition* ◆ *Foreword* ◆ *Acknowledgements* ◆ How to use this book ◆ From cell biology to biotechnology - D Balasubramanian ◆ Interplay of macromolecules in a living cell - A Pena ◆ Structural and functional dynamic of the cell – G E Herve ◆ Gene Structure and Expression – A C Robinson, L L Kisselev ◆ Gene technology - Kunthala Jayaraman, M Sritharam ◆ Protein engineering and design - V Pattabhi, N Gautham ◆ Enzyme technology - D Thomas, J M Laval ◆ Bioprocess technology: Exploitation of micro-organisms for the production of chemicals - J Green, M El-Mansi ◆ Bioprocess technology: Exploitation of animal cells - A Fiechter ◆ Immunotechnology – G P Talwar, R Raghupathy, S K Gupta, V Bal ◆ Biotechnology as a new frontier in health – M G Deo, R Mulherkar ◆ Plant biotechnology - K Dharmalinga, K Veluthambi ◆ Biotechnology in livestock Production – K C Reed, G A Smith ◆ Biotechnology in food and beverage production ◆ Environmental biotechnology ◆ Bio-informatics and pattern recognition in DNA and protein sequences – G I Bell, M El-Mansi ◆ Marine biotechnology

– R R Colwell, R T Hill ◆ Impact of biotechnology on the sustainability of the environment – F W G Baker ◆ Biotechnology, international competition, and economic, ethical and social implications in developing countries – D R J Macer ◆ *Contributors and editors* ◆ *Glossary* ◆ *Index*

2004	502 pp.	Paperback
978-81-7371-483-2		₹ 650.00

Molecular Biology NEW

Channarayappa
Professor and Head, M S Ramaiah Institute of Technology, Bengaluru, India



The study of molecular biology has widespread applications covering genetic research, drug delivery systems, stem cell therapy and cancer treatment. The functioning of biological systems is based on the flow of genetic information from the nucleotides of the DNA to the RNA leading to the production of various cellular proteins. Thus, control is exercised only by modifying the various stages of protein synthesis. Hence, the ideal approach to the study of the subject is in understanding the genetic processes that are reflected as changes in protein reactions.

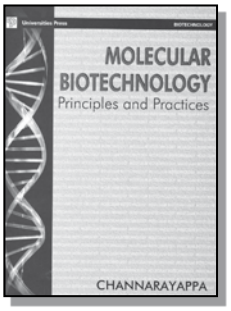
This book is a comprehensive overview of the subject and is written in a clear and simple language. It also incorporates several student-friendly features. There are numerous illustrations and tables that will enable the readers to grasp the concepts easily. Each chapter begins with Learning Objectives and includes Key Points and Self-assessment Questions. The Further Reading section guides the students towards advanced discussion of the topics. It is hoped that the book will be a valuable textbook to students of biotechnology, genetics and other courses which have molecular biology as a component.

Contents: Introduction to Molecular Biology ◆ The Cell: Structure and Functions ◆ Chemistry of Cells ◆ Basic Rules of inheritance ◆ Nucleic Acids ◆ Structure and Organisation of Genome ◆ The Cell Cycle ◆ DNA Replication ◆ Transcription ◆ RNA Processing ◆ Genetic Code ◆ Translation: Decoding the Genetic information ◆ Protein Processing and Transportation ◆ Regulation of Gene Expression in Prokaryotes ◆ Regulation of Gene Expression in Eukaryotes ◆ Epigenetic Regulation ◆ Genetic Recombination ◆ Mobile Elements: Drivers of Genome Evolution ◆ Mutagenesis and DNA Repair ◆ Molecular Biology of Cancer ◆ *Index*

2015	508 pp.	Paperback
978-81-7371-946-2		₹ 650.00

Molecular Biotechnology: Principles and Practices

Channarayappa
HOD, Department of Biotechnology, M S Ramaiah Institute of Technology, Bengaluru



The book is intended as a textbook aimed at providing undergraduate and postgraduate students with a strong base in this emerging and highly promising interdisciplinary science. It strikes a balance between two important aspects of the science—the theory of molecular biology and the experimental approach to the study of biological processes. The main feature of this book is that it covers a wide range of molecular techniques in biotechnology and is designed to be a student- and teacher-friendly textbook. Each technique is described conceptually, followed by a detailed experimental account of the steps

involved. The book can also serve as reference to the interested reader who is venturing into the field of biotechnology for the first time.

Special Features: Provides comprehensive and up-to-date coverage of key concepts in biotechnology ◆ Logical format used to provide easy access to the information ◆ Clear and well-labelled figures ◆ Extensive cross-referencing between chapters

Contents: **PART I: Introduction to Biotechnology** ◆ Biotechnology: Scope and Importance ◆ Biosafety and Good Laboratory Practices **PART II: Advanced Techniques in Molecular Biology** ◆ Techniques of Cell Fractionation and Centrifugation ◆ Chemical Synthesis of Nucleic Acids ◆ DNA Chip Technology and its Potential Applications ◆ Bioinformatics in Biotechnology **PART III: Working with Nucleic Acids** ◆ Isolation of Nucleic Acids ◆ Measuring Nucleic Acid Concentration and Purity ◆ Electrophoretic Techniques ◆ DNA Sequencing ◆ Genetic Maps and Marker Analysis ◆ Polymerase Chain Reaction (PCR) ◆ In Situ Hybridization **PART IV: Recombinant DNA and Genetic Engineering** ◆ Fundamentals of Recombinant DNA Technology ◆ Enzymes in Molecular Cloning ◆ Gene Constructs and Cloning Vectors ◆ DNA Libraries ◆ Molecular Biology of Gene Transfer Systems ◆ Selection and Screening of Recombinant Molecules ◆ **PART V: Applications of Biotechnology** ◆ Genetic Engineering of Microorganisms ◆ Genetic Engineering of Animals ◆ Genetic Engineering in Plants ◆ **PART VI: Working with Proteins** ◆ Protein Purification Techniques ◆ Protein Detection and Estimation ◆ Protein Fractionation Techniques ◆ Immunochemical Techniques ◆ **PART VII: Bacterial and Mammalian Cell Culture** ◆ Biology of Bacteria ◆ Cultivation of Mammalian Cells In vitro ◆ **PART VIII: In Vitro Plant Cell Culture and Crop Improvement** ◆ Plant Cell Culture Laboratory and Requirements ◆ Plant Culture Media, Preparation, and Culture Initiation ◆ Micropropagation ◆ Cultures of Organized Tissues ◆ Culture of Unorganized Tissues ◆ Cryopreservation and Distribution of Clonal Material ◆ Measurement of Plant Cell Growth ◆ **PART VIII: Cytological Analysis** ◆ Protoplast Fusion and Somaclonal Variation ◆ Application of Plant Cell, Tissue and Organ Culture ◆ **PART IX: Environmental Biotechnology** ◆ Biotechnology in Pollution Control ◆ Biodiversity and Genetic Conservation ◆ Bioenergy Fuel from Biomass ◆ Regulatory Aspects of Using Genetically-Modified Organisms ◆ Intellectual Property Rights and Socio-Legal Aspects of Biotechnology ◆ *Appendices*

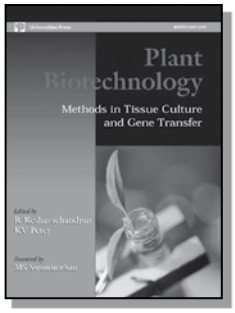
Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group

2006	1228 pp.	Paperback
978-81-7371-501-3		₹ 975.00

Plant Biotechnology: Methods in Tissue Culture and Gene Transfer

R Keshavachandran (Ed)
Professor, Centre for Plant Biotechnology and Molecular Biology, and Coordinator, Bioinformatics Centre, Kerala Agricultural University, Thrissur

K V Peter (Ed)
Professor of Horticulture and Former Vice-Chancellor, Kerala Agricultural University, Thrissur



There is growing demand for more food crops. Agricultural yield is however challenged by two concerns: availability of arable land and reduced water resources for irrigation. Biotechnology offers several tools that can be used appropriately for sustainable agriculture. Recent advances in molecular biology and recombinant DNA technology can make increased production and pest resistant crops with increased nutritive value a reality. The book has 21 chapters contributed by eminent scientists from all over the country. It discusses the various techniques and aspects of biotechnology that can bring about crop improvement. The book serves as a textbook for postgraduate students and researchers working in the fields of plant biotechnology and horticulture and a reference book for undergraduates.

Contents: Biotechnology in Indian Agriculture: *R Keshavachandran and KV Peter* ◆ The Cell Biology

of Plant Cell Culture and Development: *K Nirmal Babu, SP Geetha, A Anu, D Minoo and V Sumathi* ◆ Hormonal Regulation of *In Vitro* Morphogenesis: *PA Nazeem and PS Smitha* ◆ Maintenance of Asepsis in Tissue Culture: *D Girija* ◆ Micropropagation—Principles and Practices: *R Keshavachandran and Sandhya Sudhan* ◆ Media Requirements of *In Vitro* Culture: *R Keshavachandran and Sandhya Sudhan* ◆ Haploid Production: *JB Mythili and Pious Thomas* ◆ Triploid Production: *Pious Thomas and JB Mythili* ◆ *In Vitro* Pollination and Fertilization:*NS Rangaswamy and KR Shivanna* ◆ Embryo Culture: *K Rajmohan* ◆ Protoplast Isolation and Culture: *Pratap Kumar Pati, Madhu Sharma and Paramvir Singh Ahuja* ◆ Somatic Hybridization: *Pratap Kumar Pati, Madhu Sharma and Paramvir Singh Ahuja* ◆ *In Vitro* Selection with Plant Cell, Tissue and Organ Cultures: *P Vidhyasekaran* ◆ Synthetic Seeds: *P Suprasanna, TR Ganapathi, VA Bapat and PS Rao* ◆ Methods of Genetic Transformation in Plants: *KC Bansal, R Keshavachandran and Sandhya Sudhan* ◆ Germplasm Storage: *Rekha Chaudhury and SK Malik* ◆ GM Technology and Biosafety Regulations: *Renu Swarup* ◆ Patents in Biotechnology: *Malathi Lakshmikumaran, Shilpi Bhattacharya and Nilanjana Sensarkar* ◆ Molecular Markers and their Applications in Plant Species:*Malathi Lakshmikumaran, V Sabharwal, N Chauhan and MS Negi* ◆ Useful Genes for Plant Genetic Engineering*: P Rajendran* ◆ Biotechnology in the Conservation of Medicinal and Aromatic Plants: *S Natesh*

2008	312 pp.	Paperback
978-81-7371-616-4		₹ 395.00

Practical Biotechnology: Methods and Protocols

S Janarthanan
Senior Lecturer, Department of Zoology, Thiagarajar College, Madurai

Vincent
Reader, Department of Advanced Zoology and Biotechnology, Loyola College, Chennai

The book helps undergraduate, postgraduate and research students to perform basic experiments in biotechnology. The laboratory protocols are simple to understand by students from different scientific backgrounds. Each laboratory exercise contains an introductory unit, protocol and easy-to-follow instructions for reagent preparation. The methods and protocols given here aim to make students ready for independent research in biotechnology laboratories.

Contents: DNA ISOLATION - Isolation of Plasmid DNA ◆ Isolation of Bacterial Genomic DNA ◆ Isolation of Yeast Genomic DNA ◆ Isolation of Fungal Genomic DNA ◆ Isolation of Genomic DNA from Blood ◆ Isolation of DNA from Animal Cells ◆ Isolation of Genomic DNA from Eukaryotic Tissues ◆ Isolation of Plant DNA using CTAB Extraction Method ◆ Isolation of Chloroplast DNA ◆ Mitochondrial DNA Isolation / Phenol Chloroform Extraction of DNA ◆ Ethanol Precipitation of DNA ◆ RNA ISOLATION - Isolation of Total RNA from Bacterial Cells ◆ Isolation of Total RNA from Plant Tissues ◆ Hot Phenol Isolation of RNA from Plant Tissues ◆ Acid Phenol Extraction of RNA ◆ Messenger RNA Isolation or Poly (A) RNA Isolation ◆ WORKING WITH DNA - Storage ◆ Purification ◆ Concentration ◆ Spectrophotometric Determination of Nucleic Acid Purity and Concentration ◆ Fluorescent Quantification of DNA ◆ Quantification of DNA using Diphenylamine (DPA) Assay ◆ MOLECULAR BIOLOGY METHODS - Restriction Enzyme Digestion of DNA ◆ DNA Ligation ◆ Agarose Gel Electrophoresis of DNA ◆ Elution of DNA Fragments from Agarose ◆ Phenol Purification of DNA from Low Melting Agarose ◆ Southern Blotting ◆ Agarose Gel Electrophoresis of RNA ◆ Northern Blotting ◆ Cloning ◆ Polymerase Chain Reaction (PCR)(In Vitro Amplification of DNA) ◆ SDS–Polyacrylamide Gel Electrophoresis ◆ Western Blotting (Immunoblotting) ◆ Iso-electric Focusing (IEF) of Proteins ◆ 2D Gel Electrophoresis (2D PAGE) ◆ Trypsin Digestion of Protein Gel ◆ Protein Dialysis ◆ Enzyme (Esterase) Gel Electrophoresis ◆ SOME USEFUL INFORMATION FOR METHODS IN MOLECULAR BIOLOGY - Antibiotic Concentration in Media ◆ E. coli Growth Curve ◆ Storage of Bacterial Strains in Stab Agar ◆ Storage of Bacterial Strains in Glycerol Solution ◆ Decontamination of Ethidium Bromide (EtBr) Solutions ◆ Preparation of Solutions ◆ Glassware and Plasticware ◆ Disposal of Buffers and Chemicals ◆ Autoclave Operating Procedures ◆ Safety Procedures ◆ PREPARATION OF SOLUTIONS ◆ *References*

2007	136 pp.	Paperback
978-81-7371-582-2		₹ 225.00

Principles and Practice of Animal Tissue Culture
(Second Edition)

Sudha Gangal
Research Advisor, Integrated Cancer Treatment and Research Centre, Pune, India

The technology of cell, tissue and organ culture is of primary importance in the development of the biotechnology industry. Major advances in the biological sciences have been possible, at least partially, due to this technology. *Principles and Practice of Animal Tissue Culture* provides basic information on the technology of animal tissue culture and discusses several specialised techniques. The book is well supported by relevant graphs and photographs of equipment and cultured tissues.

The book is a comprehensive practical guide that emphasises 'good laboratory practices'. Protocols, aseptic techniques, media preparation and data have been systematically presented to be of help primarily to students of biotechnology. *The second edition of this book includes a new chapter on Primary Culture of Chick Embryo Fibroblasts written in the same lucid style.*

Special Features: The book explains: The principles of animal tissue culture in simple terms ◆ How to set up a laboratory for tissue culture in India with the equipment and facilities available locally ◆ The procedures for various experiments and specialised techniques in a clear and lucid manner ◆ How to use a primary culture to help in the study of cell–cell interactions, maintenance of functional ability of cells and effect of external stimuli of cell functions (in the new chapter) ◆ Various methods with the help of photographs and drawings of equipment in twenty colour plates

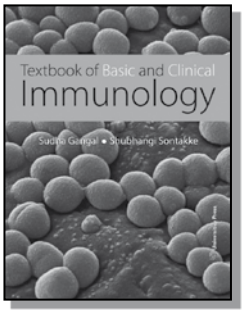
Contents: *Introduction* ◆ Designing the tissue culture laboratory ◆ Equipping the tissue culture laboratory ◆ Glassware and plasticware used for tissue culture ◆ Aseptic techniques ◆ Sterilisation of materials to be used for tissue culture ◆ Tissue culture media ◆ Types of tissue culture ◆ Organ and organotypic cultures ◆ Primary cultures ◆ Transformation, differentiation and dedifferentiation ◆ Culture of cell lines ◆ Protocols for routine characterisation of cell lines ◆ Specialised techniques in tissue culture ◆ Stem cells cultures ◆ Autoradiography of cultured cells ◆ Cytogenic analysis of cultured cells ◆ Flow cytometric analysis of lymphocytes and cultured cells ◆ Hybridoma cultures to generate monoclonal antibodies ◆ Laser confocal microcsopy and its application in cell biology ◆ Primary culture of chick embryo fibroblasts ◆ Troubleshooting

2010	248 pp.	Paperback
978-81-7371-719-2		₹ 350.00

Textbook of Basic and Clinical Immunology

Sudha Gangal
Research Advisor, Integrated Cancer Treatment and Research Centre, Pune, India

Shubhangi Sontakke
Professor of Biochemistry, Rajiv Gandhi Institute of IT and Biotechnology, Bharati Vidyapeeth University, Pune, India



This book has been written keeping in mind the needs of the Indian student and curriculum. The content is exhaustive and cannot be found in any single textbook, Indian or foreign. Its uniqueness is the packaging of the basic and the clinical aspects of immunology in a single book.

The purpose of creating this book is:

- To put forth the concepts involved in immunology in as simplified a manner as possible for the students whose first language is not English
- To reduce to the minimum, description of animal experiments so elegantly conducted to explain the several important concepts (This was intentionally done to avoid confusion amongst students who are not exposed to animal science—basically the book gives more weightage to human immunology)
- To include immunology of diseases commonly encountered in South-East Asian countries, so that students of medicine will grasp the basic complexities of the diseases they encounter

The book is thematically divided into *two sections*.

The *first sixteen chapters* deal with basic immunology. This part deals with development and maturation of cells of the immune system, molecular basis of diversity of immune response, movement of cells to the site of infection directed by soluble mediators, functions of effector cells and molecules, and careful control of harmful effects of activated immune effectors. *Chapter 17* is entirely devoted to the principles of laboratory techniques used in immunology.

The *second part*, covered in ten chapters, deals with immune response to infectious and non-infectious diseases such as cancer, autoimmune diseases, allergy (hypersensitivity) and diseases caused by mutations occurring during several developmental steps in the complex process of maturation of immune response, giving rise to immunodeficiency diseases. While dealing with the problems in the life-saving procedure of allogeneic transplantation, a special section is devoted to the development of new biologics such as engineered monoclonal antibodies and fusion proteins, future applications of derivatized stem cells and other genetic engineering applications.

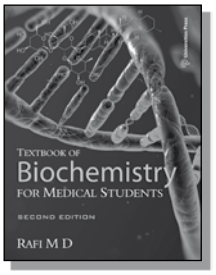
Contents: *Foreword* ◆ *Preface* ◆ *Abbreviations* ◆ Introduction to Immunology ◆ Innate Immunity ◆ Cells of the Immune System ◆ Organs of the Immune System ◆ Antigens ◆ Antibodies ◆ Antigen Presenting Cells, Antigen Processing and Presentation ◆ Major Histocompatibility Complex ◆ B cells: Maturation, Activation, Proliferation and Differentiation ◆ Immunoglobulin Gene Rearrangement ◆ T Cell Maturation, Activation and Differentiation ◆ T Cell Receptor ◆ Cytokines, Chemokines and their Receptors ◆ Cell Signalling and Trafficking ◆ The Complement System ◆ Effector Mechanisms ◆ Principles and Applications of Laboratory Tests in Immunology ◆ Monoclonal Antibodies: Production and Applications ◆ Immunology of Bacterial Diseases ◆ Immunology of Viral Diseases ◆ Immunology of Parasitic Diseases ◆ Transplantation Immunology ◆ Tumour Immunology ◆ Tolerance and Autoimmunity ◆ Hypersensitivity ◆ Acquired and Inherited Immunodeficiency Diseases ◆ Vaccines ◆ *Appendix I Selected markers of human Cluster of Differentiation (CD)* ◆ *Appendix II Cytokines and growth factors: Sources and functions* ◆ *Appendix III Chemokines, receptors and functions Cells expressing chemokine receptors* ◆ *Appendix IV Answers to objective questions and MCQs*

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2013	572 pp.	Paperback
978-81-7371-829-8		₹ 950.00

Textbook of Biochemistry for Medical Students
(Second Edition)

Rafi MD
Professor and Head, Department of Biochemistry, Chalmeda Ananda Rao Medical College, Karimnagar, India



This second edition of this book is extensively revised. It now covers the complete syllabus prescribed by the Medical Council of India for the MBBS course. Although it is designed as a basic textbook for the undergraduate student, it has resource material for postgraduates and advanced learners in biochemistry and medicine.

The topics are developed in a manner that encourages the student to develop analytical ability as opposed to memory-based learning. Each chapter begins with At a glance which gives a bird's eye view of the content, thus facilitating better comprehension of the whole. At the end of each chapter, MCQs, Clinical case studies, Problem-based exercises and Riddles have been given. These will be of immense help to the students preparing for various competitive examinations in India and abroad that include USMLE, PLAB, and All India MD/MS entrance examinations.

Contents: *Preface to the Second Edition* ◆ *Preface to the First Edition* ◆ Section I: Prelude ◆ Section II: Molecules of Life ◆ Section III: Physiological

Biochemistry ◆ Section IV: Metabolism ◆ Section V: Nutrition ◆ Section VI: Clinical Biochemistry ◆ Section VII: Molecular Biology and Nuclear Chemistry ◆ Section VIII: Biotechnology and Biochemical Techniques ◆ Section IX: Biochemical Perspective of Endocrinology ◆ Section X: Contemporary Topics ◆ *Key to MCQs* ◆ *Appendix* ◆ *Index*

2014	816 pp.	Paperback
978-81-7371-936-3		₹ 925.00

Chemistry

A Basic Course in Crystallography

J A K Tareen & T R N Kutty

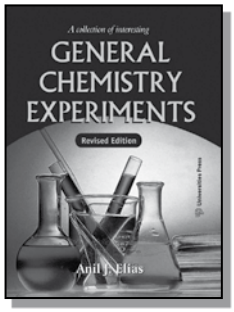
Crystallography is a multidisciplinary subject, forming a part of courses in Materials Science, Chemistry, Condensed Matter Physics, Metallurgy, Ceramics, Geology, Mineralogy, and some disciplines in Engineering. The most important feature of this book is the logical development of the subject, the crucial key word being symmetry in point groups as well as the translational distribution of molecules to generate the long-range order. A large number of illustrations complement the lucid narration. Worked examples and exercises are included in most chapters.

Contents: EXTERNALSYMMETRY-Introduction ◆ Definition of Symmetry ◆ Symmetry Elements ◆ Improper Axes; Symbols for the Symmetry Elements ◆ Combination of Symmetry Elements ◆ The 32 Permissible Point Groups ◆ Characteristic Axes and Crystal Systems ◆ Scheoenfiles Notations ◆ DESCRIPTION OF CRYSTALS - Introduction ◆ Crystallographic Axes ◆ Nomenclature of Planes ◆ Crystal Projections ◆ Symmetry Projections of Thirty-two Point Groups ◆ Zones and Zone Laws ◆ Angular Measurements ◆ Enantiomorphic Forms ◆ Deviation from Ideal Geometry-Twinning ◆ INTERNAL SYMMETRY AND CRYSTAL LATTICE ◆ Introduction ◆ Array of Objects and Translational Symmetry ◆ Planar Lattice Types ◆ The Possible Space Groups ◆ Simple Space Groups ◆ Internal Symmetry Elements ◆ The 230 Space Groups ◆ STRUCTURAL PRINCIPLES IN CRYSTALS ◆ Introduction; Geometry of Molecular Arrangement ◆ Simple Type Structure ◆ Pauling's Rules ◆ Silicate Structures ◆ Defects in Crystals ◆ THE PHYSICAL PROPERTIES OF CRYSTALS ◆ Introduction ◆ Cohesive Properties ◆ Density and Specific Gravity ◆ Thermal Properties; Electrical Properties ◆ Magnetic Properties ◆ Optical Properties ◆ DIFFRACTION BY CRYSTALS- X-RAY CRYSTALLOGRAPHY ◆ Introduction ◆ Production and Properties of X-rays ◆ X-ray Diffraction by Crystals ◆ Methods in X-ray Crystallography ◆ The Powder Method ◆ Single Crystal Techniques ◆ The Moving Film Method ◆ Systematic Absences ◆ Intensities of Diffracted X-rays and Structure Analysis ◆ Electron Diffraction ◆ Neutron Diffraction ◆ *Bibliography* ◆ *Subject* ◆ *Index*

2000	176 pp.	Paperback
978-81-7371-360-6		₹ 425.00

A Collection of Interesting General Chemistry Experiments

A J Elias
Professor, Department of Chemistry, IIT Delhi, New Delhi



This novel collection of twenty-two experiments, covering all areas of practical chemistry, has been introduced for the basic chemistry courses of Indian Institute of Technologies (IITs) and similar courses at other institutions where chemistry is taught at the undergraduate level. The experiments are modern and interesting and can be carried out with the existing facilities in any chemistry undergraduate laboratory. The emphasis is on experiments, which involve chemicals and products encountered in the day-to-day life of an average student. Each experiment also includes a write up on the theoretical background required to understand the chemistry behind the experiment and to enjoy the experience of doing it in the laboratory.

The new experiments included in this revised edition cover the area of electrochemistry,

an important component of undergraduate practical chemistry. This book would be useful to all undergraduate chemistry courses especially the IITs.

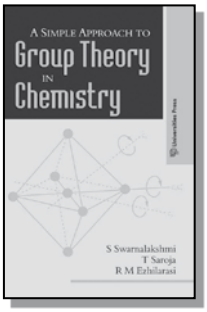
2008 160 pp. Paperback
978-81-7371-599-0 ₹ 250.00

A Simple Approach to Group Theory in Chemistry

Dr S Swarnalakshmi
Former Reader, Department of Chemistry, Guru Nanak College, Chennai

T Saroja
Selection Grade Lecturer, Department of Chemistry, Guru Nanak College, Chennai

R M Ezhilarasi
Senior Scale Lecturer, Department of Chemistry, Guru Nanak College, Chennai



This book has been specially designed to use a simple and easily understandable approach that explains the basics of symmetry elements and operations, how to identify point groups and the application of group theory in spectroscopy. The numerous worked-out examples and illustrations of symmetry elements and operations guide the reader in a step-wise manner through the subject. ***Even those without a background in mathematics will find this approach easy and helpful.***

Contents: Symmetry elements and symmetry operations ◆ Symmetry elements and point groups ◆ Matrix representation of symmetry operations ◆ Representation of point groups ◆ Irreducible representations and character tables ◆ Symmetry of hybrid orbitals ◆ Determination of symmetry of vibrational modes ◆ Infrared and Raman activity of molecular vibrations ◆ Selection rules for electronic transitions ◆ *Appendices* ◆ *Exercises* ◆ *References* ◆ *Index*

2008 156 pp. Paperback
978-81-7371-623-2 ₹ 295.00

Analytical Chemistry

G L David Krupadanam
Formerly Professor of Organic Chemistry, Department of Chemistry, University College of Science, Osmania University, Hyderabad, India

D Vijaya Prasad
Reader and Head, Department of Chemistry, New Government Degree College, Khairatabad, Hyderabad, India

K Varaprasad Rao
Reader in Chemistry, New Science College, Ameerpet, Hyderabad, India

K L N Reddy
Lecturer, New Government Degree College, Khairatabad, Hyderabad, India

C Sudhakar
Lecturer in Chemistry, New Government Degree College, Khairatabad, Hyderabad, India

This book deals with the principles and applications of analytical chemistry, and *is useful for B.Sc. chemistry students and those working in analytical research laboratories of drug, pesticide and other chemical industries*. The topics discussed include the procedures to be followed in analytical work, solvent extraction as a technique in the isolation and purification of compounds, and chromatographic techniques (TLC, column, paper, ion-exchange, and HPLC) that are used for identification, purification, quantitative analysis and for monitoring the progress of reactions.

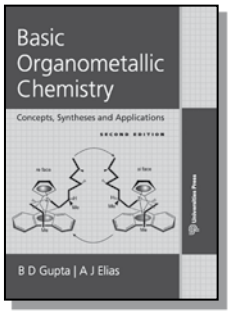
Contents: *Preface* ◆ Evaluation of Analytical Data ◆ Separation Methods: Solvent Extraction ◆ Separation Methods: Chromatography ◆ Instrumental Methods of Analysis: UV-Visible Spectroscopy ◆ Analysis of Water ◆ *Index*

2001 216 pp. Paperback
978-81-7371-385-9 ₹ 295.00

Basic Organometallic Chemistry: Concepts, Syntheses and Applications
(Second Edition)

BD Gupta (Late)
Professor, Department of chemistry, IIT Kanpur

Anil J Elias
Professor, Department of chemistry, IIT Delhi



Organometallic chemistry is an integral part of every chemistry curriculum the world over, primarily because it bridges two main sub-disciplines of chemistry—inorganic and organic chemistry. ***Basic Organometallic Chemistry: Concepts, Syntheses and Applications, Second Edition***

- covers a large variety of topics in detail;
- includes several new topics supplemented with relevant figures;
- is lavishly complemented with figures, equations and schemes for easy comprehension;
- includes carefully selected, updated and comprehensive references;
- provides a number of problems and exercises to test understanding;
- provides detailed solutions to the problems as appendices;
- is useful for M.Sc chemistry students and researchers in many areas of chemistry.

Contents: Chapter 1 Introduction ◆ What is organometallic chemistry? ◆ A brief history of organometallic chemistry ◆ Importance of organometallic compounds ◆ Supplementary reading ◆ Chapter 2 The 18 Valence Electron Rule ◆ Introduction ◆ The 18 electron rule ◆ Counting of electrons and finding metal–metal bonds ◆ Compliance and violation of the 18 electron rule ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 3 Metal Carbonyls ◆ Structure, π-bonding and infrared spectroscopy ◆ Bonding modes of CO ◆ Symmetry of metal carbonyls ◆ Syntheses of metal carbonyls ◆ Reactions of metal carbonyls ◆ Metal nitrosyls ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 4 Neutral Spectator Ligands: Phosphines and N-heterocyclic Carbenes ◆ Phosphines: steric and electronic parameters ◆ Basicity of phosphines ◆ Monodentate phosphines ◆ Multidentate phosphines ◆ N-Heterocyclic carbenes ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 5 Alkenes and Alkynes as Ligands ◆ Models of ethylene–metal bonding ◆ Synthesis of metal–alkene complexes ◆ Reactions of metal bound alkenes: The concept of Umpolung ◆ Alkynes: modes of bonding to metals ◆ Reactions of metal complexes of alkenes and alkynes ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 6 Carbenes and Carbynes: Complexes with Metal–Carbon Double and Triple Bonds ◆ Metal carbenes ◆ Metal carbynes ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 7 Alkyl, Aryl and Ligands with Higher Hapticity ◆ σ bonded alkyl groups as ligands ◆ Cyclic and acyclic polyenyl π bonded ligands ◆ Davies–Green–Mingos (DGM) rules ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 8 Unique Reactions in Organometallic Chemistry ◆ Oxidative addition and oxidative coupling ◆ Reductive elimination ◆ Migratory insertion reactions ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 9 Ligand Substitution Reactions and Fluxionality in Organometallic ◆ Compounds ◆ Types of ligand substitution reactions ◆ Associative substitutions ◆ Dissociative substitutions ◆ Interchange mechanisms ◆ Stereochemical non-rigidity in organometallic compounds ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 10 Metal Clusters ◆ Introduction ◆ Dinuclear clusters ◆ Multinuclear carbonyl clusters ◆ The isolobal analogy ◆ Synthesis of metal carbonyl clusters ◆ Reactions of metal carbonyl clusters ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 11 Homogeneous Catalysis Using Organometallic Compounds ◆ Catalysis ◆ Terminology in catalysis ◆ Sequences involved in a catalysed reaction ◆ Other important terminology used in catalysis ◆ Asymmetric synthesis using a catalyst ◆ Heterogeneous catalysis ◆ Feedstock for the chemical industry ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 12 Catalytic Hydrogenation of Alkenes and Related Reactions ◆ Hydrogenation catalysts ◆ Catalytic asymmetric synthesis ◆ Hydrocyanation of alkenes

◆ Hydrosilylation of alkenes ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 13 Hydroformylation ◆ Importance of hydroformylation ◆ Cobalt catalysts for hydroformylation ◆ Phosphine modified cobalt catalysts ◆ Rhodium–phosphine catalysts ◆ Factors affecting the n/iso ratio of hydroformylation products ◆ Enantioselective hydroformylation ◆ Carboalkoxylation of olefins ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 14 Methanol Carbonylation and Olefin Oxidation: Monsanto, Cativa and Wacker ◆ Processes ◆ History of methanol carbonylation ◆ The Monsanto process ◆ Celanese process using LiI modified rhodium catalyst ◆ Tennessee Eastman acetic anhydride process ◆ British Petroleum's Cativa process ◆ The Wacker process ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 15 Olefin Metathesis ◆ Olefin metathesis as a synthetic tool ◆ Well known olefin metathesis catalysts and their properties ◆ Synthesis of Grubbs' and Schrock catalysts ◆ Mechanism of olefin metathesis ◆ Comparison of catalysts ◆ Metathesis of hindered olefins ◆ Applications of catalytic olefin metathesis ◆ Alkyne metathesis ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 16 Palladium Catalysed C–C and C–N Cross Coupling Reactions ◆ Discovery of palladium based cross coupling reactions ◆ Industrial applications of cross coupling reactions ◆ The cross coupling catalyst ◆ The Heck reaction ◆ Suzuki–Miyaura coupling ◆ Sonogashira coupling ◆ Stille coupling ◆ Kumada coupling ◆ Negishi coupling ◆ Hiyama coupling ◆ Buchwald–Hartwig C–N cross coupling ◆ Cross coupling reactions in aqueous media with functional group tolerance ◆ Cross coupling reactions of organohalides with non-organometallic and non-heteroatom based reagents ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 17 Olefin Polymerisation and Oligomerisation Reactions ◆ Catalysts for olefin polymerisation ◆ Types of polyethylene and polypropylene ◆ The Ziegler–Natta catalyst ◆ Site control and chain end control mechanisms ◆ Metallocene based catalysts ◆ Post-metallocene catalysts ◆ Olefin oligomerisation reactions ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 18 Ferrocene: Structure, Bonding and Reactions ◆ Structure and bonding of ferrocene ◆ The reactions of ferrocene and its derivatives ◆ Ferrocene derivatives in asymmetric catalysis ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 19 Organometallic Polymers ◆ Polymers with organometallic moieties as pendant groups ◆ Polymers with organometallic moieties in the main chain ◆ Organometallic dendrimers ◆ Problems and exercises ◆ Supplementary reading ◆ Chapter 20 Bioorganometallic Chemistry ◆ Introduction ◆ Organometallic enzymes and coenzymes ◆ Role of organometallics in heavy metal poisoning ◆ Organometallic compounds as drugs ◆ Organometallics as radiopharmaceuticals, tracers, ionophores and sensors ◆ Problems and exercises ◆ Supplementary reading ◆ *Appendix 1:* Solutions to problems and exercises ◆ *Appendix 2:* Quick revision questions

2013	536 pp.	Paperback
978-81-7371-874-8		₹ 725.00

Chemical Process Calculations

K Asokan
Formerly Chief Scientist, Central Electro Chemical Research Institute (CECRI), Karaikudi, India

A range of materials like fuels, fertilizers, processed foods, life-saving pharmaceuticals and filtered clean water are being produced today. Several stages and processes are gone through during their production. Different materials or chemicals are added or removed in each step, and energy in the form of heat is also gained or lost. A chemical engineer needs to have a thorough understanding of how much of different materials is needed for the required output, as well as the energy balance of the processes involved. A course in chemical process calculations will help gain such an understanding.

The book provides a simple treatment of the subject matter. *The fundamental principles are explained through 173 worked examples. Exercise problems with answers (154 in number) are also given for practice.*

Contents: Dimensions, Units and Conversions ◆ Basic Concepts ◆ Material Balance in Non-Reaction Systems ◆ Material Balance in Reaction Systems ◆ Material Balance in Unit Operations ◆ Unsteady State Material Balance ◆ Energy Balance ◆ Fuels and Combustion ◆ *Answers to Problems*

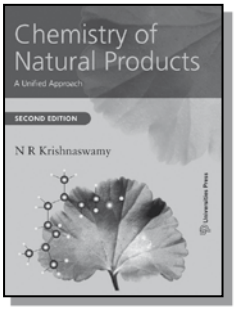
Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group

2007	264 pp.	Paperback
978-81-7371-594-5		₹ 395.00

Chemistry of Natural Products: A Unified Approach

(Second Edition)

N R Krishnaswamy
Former Professor, All India Institute of Medical Sciences, New Delhi, University of Delhi, Bangalore University, Calicut University and Sri Sathya Sai Institute of Higher Learning



This book provides a planned account of the common features structural and stereochemical of naturally occurring organic compounds). This is the only approach to bring about effective understanding of their chemistry. A variety of examples have been given to illustrate varied aspects so that the range of structure and behaviour exhibited by these compounds is retained within the set framework. The increasing application of physical (spectroscopic) methods like IR, NMR, CD, ORD, MS, High Resolution Mass Spectroscopy—using which, structural determinations are often done with very small or even microscopic quantities of the substance—is emphasised, without undermining the importance of 'classical' chemical methods. The section on problem solving helps to develop an analytical and critical evaluation of the data.

The Second Edition reflects the significant and important developments that have taken place since the publication of the first edition, particularly with regard to the biological aspects of natural products.

- Unified approach: Discusses all classes of compounds
- Unique approach: Discusses common structural and stereochemical features of naturally occurring organic compounds
- Page extent increased by 200 pages
- New chapter: Introduction
- Revised Introduction for all chapters
- Examples: About 100 examples across the book and 6 new per chapter
- Correlation with spectral data
- Problems: 5 additional problems

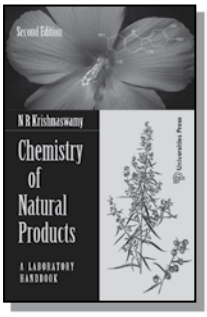
Contents: Introduction ◆ Structure ◆ Stereochemistry ◆ Reactions and Rearrangements ◆ Synthesis ◆ Biosynthesis ◆ Biological Significance of Secondary Metabolites ◆ *Problems* ◆ *Index*

Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group

2010	432 pp.	Paperback
978-81-7371-677-5		₹ 595.00

Chemistry of Natural Products: A Laboratory Handbook

N R Krishnaswamy
Former Professor, All India Institute of Medical Sciences, New Delhi, University of Delhi, Bangalore University, Calicut University and Sri Sathya Sai Institute of Higher Learning



This book is a laboratory companion to the author's book, *Chemistry of Natural Products: A Unified Approach*, Second edition (Universities Press, 2010). ***The main objective is to provide students with experimental details for the successful isolation of different types of natural products.***

The handbook has been extensively revised and updated. Apart from including additional examples under isolation, chemical transformation and synthesis, two new chapters have been added to enlarge the scope of the book and make it useful to students of organic chemistry and biochemistry. They are:

- Metabolism of Natural Products
- Suggested Projects

Notes on how to collect and identify plant materials, and the preparation of diagnostic chemical reagents used in the characterisation of natural products, have been included.

The chemistry of natural products is a hybrid science combining the theory of organic chemistry with experimentation. This book contains a judicious combination of both spectroscopic and chemical methods. All the experiments have been successfully class tested.

Contents: Introduction ◆ A Survey of the Methods of Extraction, Isolation and Fractionation of Naturally Occurring Organic Compounds ◆ Characterisation of Naturally Occurring Compounds ◆ Procedures for Isolation of Select Compounds ◆ Chemical Transformations of some Natural Products ◆ Synthesis of Select Compounds ◆ Metabolism of Natural Products ◆ Suggested Projects ◆ *Appendix A* ◆ *Appendix B* ◆ *Index of Compounds* ◆ *Index of Plants* ◆ *Index of Reagents*

Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group

2012	224 pp.	Paperback
978-81-7371-757-4		₹ 250.00

College Practical Chemistry

V K Ahluwalia
Visiting Professor at the Dr B R Ambedkar Centre for Biomedical Research, University of Delhi

Sunita Dhingra
Reader, Miranda House, University of Delhi

Adarsh Gulati
Reader, Miranda House, University of Delhi

- This book contains a complete treatment of practical chemistry which would meet the requirement of undergraduate students of chemistry at different universities in India.
- Presents the basic theory and procedure for each experiment.
- Divided into three sections – Inorganic Chemistry, Organic Chemistry and Physical Chemistry.

Contents: *Preface* ◆ Part I: INORGANIC CHEMISTRY: Qualitative Inorganic Analysis ◆ Volumetric Analysis ◆ Gravimetric Analysis ◆ Preparation of Inorganic Compounds ◆ Part II: ORGANIC CHEMISTRY: Qualitative Organic Analysis (Systematic Identification of Organic Compounds) ◆ Preparation and Isolation of Organic Compounds ◆ Chromatography ◆ Part III: PHYSICAL CHEMISTRY: Physical Methods for Determining Molar Masses ◆ Measurement of Viscosities and Surface Tensions of Liquids ◆ Measurement of Solubilities ◆ Determination of Transition Temperatures ◆ Determination of Order of a Reaction ◆ Adsorption Studies ◆ Polyphase Heterogeneous Equilibria ◆ Thermochemical Measurements ◆ Conductance Measurements in Electrolytes ◆ Potentiometric Measurements in Chemical Systems ◆ Polarography ◆ Polarimetry and Photometry ◆ *Appendices* ◆ *Index*

2005	524 pp.	Paperback
978-81-7371-506-8		₹ 475.00

Comprehensive Practical Organic Chemistry: Qualitative Analysis

V K Ahluwalia & Sunita Dhingra

This manual for practical qualitative analysis covers the use of spectroscopic methods for identification of various functional groups. Comprehensive tables giving methods for the systematic identification of pure specimens, separation of mixtures and compounds, and procedures for preparation of derivatives are some of the salient features of the book.

Contents: *Preface* ◆ Safety in the Laboratory ◆ Introduction ◆ Preliminary Examination ◆ Detection of Functional Groups ◆ Preparation and Recrystallisation of Derivatives ◆ Application of Spectroscopy to the Identification of Organic Compounds ◆ Separation of Mixtures ◆ Tables of Organic compounds ◆ Preparation of Reagent and Indicators ◆ Summary of the Scheme Used for Identification of Unknown Organic Compounds ◆ Suggested Books for Further Reading ◆ *Index*

2000	304 pp.	Paperback
978-81-7371-428-3		₹ 350.00

Comprehensive Practical Organic Chemistry: Quantitative Analysis

V K Ahluwalia & Renu Aggarwal

In this book on quantitative analysis and reagent preparation, the authors adopt a novel

approach—all the preparations have been given in the form of organic reactions in alphabetical order, with their respective reaction mechanisms. The procedures of some preparations are also discussed. Estimation of various compounds and functional groups is also included. A complete chapter is devoted to chromatography, with exercises.

2004	332 pp.	Paperback
978-81-7371-475-7		₹ 350.00

Drugs

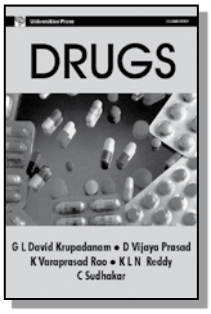
G L David Krupadanam
Professor of Organic Chemistry, Department of Chemistry, Osmania University, Hyderabad

D Vijaya Prasad
Reader and Head, Department of Chemistry, New Government Degree College, Khairatabad, Hyderabad

K Varaprasad Rao
Reader in Chemistry, New Science College, Ameerpet, Hyderabad

K L N Reddy
Lecturer, New Government Degree college, Khairatabad, Hyderabad

C Sudhakar
Lecturer, New Government Degree College, Khairatabad, Hyderabad



Drugs have played a central role in the progress of human civilization. There are many important stages before a compound is used as a drug to treat a disease. This book deals with the historical aspects of the development and use of drugs, vitamins, hormones; their classification, synthesis and formulation; and the general principles of drug actions.

The pharmacokinetics, the interaction of drugs in the targeted receptor, and mode of drug synthesis is explained in detail.

Contents: 1. Introduction ◆ The requirements of an ideal drug ◆ Sources of drugs ◆ Historical evolution of drugs ◆ Terminology and description of the terms ◆ Pharmacokinetics ◆ Pharmacodynamics ◆ Metabolites and ant metabolites ◆ Pharmacophore ◆ Bacteria ◆ Fungi ◆ Viruses ◆ Mutations ◆ **2. Pharmacodynamic agents** ◆ Classification of drugs-criteria ◆ Structure – activity relationship (SAR) in drugs ◆ Drugs acting on the central nervous system (CNS) ◆ Drugs acting on the peripheral nervous system (PNS) ◆ Drugs acting on the cardiovascular system ◆ Drugs acting on the hematopoietic system ◆ Drugs acting on the renal system ◆ **3. Vitamins, hormones and synthetic drugs** ◆ Hormones: the chemical messengers ◆ Synthetic and natural drugs ◆ Synthetic drugs ◆ Natural drugs ◆ **4. Formulation of drugs** ◆ Solid dosage forms ◆ Liquid dosage forms ◆ Semi – solid dosage forms ◆ *Glossary* ◆ *Index*

2001	168 pp.	Paperback
978-81-7371-386-6		₹ 325.00

Electronic Absorption Spectroscopy

D N Sathyanarayana

This book provides a conceptual and experimental basis for the interpretation of electronic absorption spectroscopy and related techniques. The basic theories, instrumentation and interpretation of the spectra of organic and coordination compounds for structural studies are presented step-by-step, in an easily understandable style. Related topics of emission spectroscopies are covered as well.

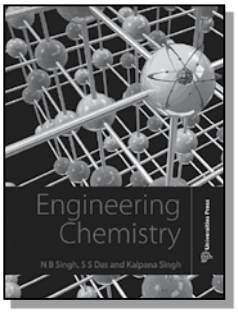
2001	544 pp.	Paperback
978-81-7371-371-2		₹ 750.00

Engineering Chemistry

N B Singh
Former Professor and Head, Department of Chemistry, DDU Gorakhpur University and Academic Coordinator for the Ph D programme, Sharda University

S S Das
Professor, Department of Chemistry, DDU, Gorakhpur University

Kalpana Singh
Associate Professor, GNIT, Greater Noida



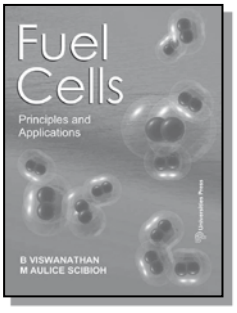
- ***Engineering Chemistry*** has been tailored precisely to suit the needs of technical universities in Uttar Pradesh and meets the requirements of the B Tech students.
- The book is written in simple language which makes understanding easy.
- The authors have presented the subject matter in a very lucid and comprehensive manner.
- Several solved examples are included. SI units have been consistently used.
- Relevant figures, tables, labelled diagrams and equations are presented wherever required.
- Exhaustive exercises in the form of questions and problems have been provided to test the comprehension of students.

2012	276 pp.	Paperback
978-81-7371-810-6		₹ 195.00

Fuel Cells: Principles and Applications

B Viswanathan
Professor, Department of Chemistry, Indian Institute of Technology, Madras

M Aulice Scibioh
Visiting Research Scientist, Fuel Cell Research Center, Korea Institute of Science and Technology, Seoul



This book discusses the scientific principles and technology of various types of fuel cells—PEM (polymer membrane fuel cell), PAFC (phosphoric acid fuel cell), MCFC (molten carbonate fuel cell), SOFC (solid oxide fuel cell) and DMFC (direct methanol fuel cells). Fuel cells are power-generating devices with a wide range of applications including stationary power generation (MW), portable power generation (kW) and transportation (kW). The key advantages of the fuel cell are high efficiency, the lack of emissions, modularity, fuel flexibility, and high power density. The only emission from fuel cells is water when hydrogen is fed to the fuel cell. For these reasons, research in the area of fuel cells is of great significance. The book provides a snapshot of the present status of this rapidly progressing field: the ongoing breakthroughs in research and development, the directions for the future, and the proactive work of several firms in commercially producing fuel cell systems The book is a comprehensive reference book, explaining concepts and their applications. The interdisciplinary approach that draws on and clarifies the most recent research trends, makes this book interesting to everyone who is concerned with energy demands and fuel cells.

Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group

2006	504 pp.	Paperback
978-81-7371-557-0		₹ 695.00

Functional Materials: A Chemists Perspective

Vijayamohanan K Pillai
Acting Director, Central Electrochemical Research Institute, Karaikudi, Tamil Nadu
Scientist, Physical & Materials Chemistry Division, National Chemical Laboratory, Pune

Meera Parthasarathy
Assistant Professor in the Department of Chemistry, School of Chemical & Biotechnology, SASTRA University, Thanjavur, Tamilnadu

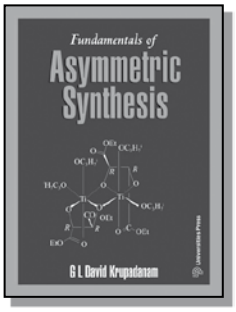
This book introduces the reader to the basic concepts, lines of development, main characteristics and applications of functional materials. Several examples of functional materials developed during the last two decades are used to illustrate their versatility and range of function. This book examines the preparation and characterization of some of these materials from the perspective of a synthetic chemist. Although research in this area is multidisciplinary, the chemistry of these materials is given special importance. Existing and emerging applications of functional materials in energy storage, polymer electronics, chemical sensors, nanobiotechnology and medicine are highlighted.

Contents: *Foreword* ◆ *Preface* ◆ *Acknowledgements* ◆ *About the Series* ◆ *Editorial Advisory Board* ◆ **1 Functional Materials: A Virtual Tour** ◆ Materials Science and Engineering—The Conventional Outlook ◆ What are Functional Materials? ◆ Where do Functional Materials come from? ◆ Historical Perspectives ◆ Lessons from Nature ◆ Significance of Functional Materials ◆ Engineering Functions ◆ Dematerialization ◆ The Way Ahead—Multiscale Modelling and Computation ◆ Conclusions **2 Classification of Functional Materials** ◆ Introduction ◆ Classification Based on Chemical Identity ◆ Classification Based on Functions and Applications ◆ Technological Relevance ◆ Conclusions **3 Molecular Self-Assembly** ◆ Introduction ◆ Classification of Self-assembled Monolayers ◆ Synthetic Protocols and Challenges ◆ Limitations of Self-assembly ◆ Applications of SAMs ◆ Conclusions **4 Bioinspired Materials** ◆ Introduction ◆ Classification of Bioid Materials ◆ Bionics: Bioinspired Information Technology ◆ Biomineralization—en route to Nanotechnology ◆ Advantages and Limitations ◆ Challenges Ahead ◆ Conclusions **5 Smart Materials** ◆ Introduction ◆ Smart Tools to Impart intelligence ◆ Representative Examples ◆ Technological Limitations and Challenges ◆ Conclusions **6 Functional Materials for Sustainable Energy** ◆ Introduction ◆ Materials for Solar Energy Conversion ◆ Materials for Electrochemical Power Sources ◆ Hydrogen Economy—a Material Challenge ◆ Impact of Nanotechnology ◆ Conclusions **7 Materials for Polymer Electronics** ◆ Introduction ◆ From Molecular Electronics to Polymer Electronics ◆ Polymeric Semiconductors in Light Emitting Diodes ◆ Polymer Photovoltaics ◆ Polymer Displays ◆ Field Effect Transistors ◆ Intelligent Polymers for Data Storage ◆ Conclusions **8 Functional Nanocomposites** ◆ Why 'Nano'composites? ◆ Classification of Nanocomposites ◆ Synthetic Strategies ◆ How to make Nanocomposites 'Functional'? ◆ Interfacial Engineering—Harvesting Maximum Performance ◆ Theoretical models for Interfacial Interactions ◆ Applications of Nanocomposites ◆ Conclusions ◆ **Going Beyond Functional Materials—Future Directions** ◆ Introduction ◆ Limitations of Functional Materials ◆ Major Challenges in Developing Next Generation Materials ◆ Social Impact of Functional Materials ◆ Functional Materials and the UN Millennium Development Goals ◆ Predictions for the Future ◆ *Epilogue* ◆ *Index*

2012	408 pp.	Paperback
978-81-7371-768-0		₹ 550.00

Fundamentals of Asymmetric Synthesis

G L David Krupadanam
Advisor, Research & Development, Osmania University



The book deals with the fundamental concepts, terminology, mechanistic aspects and applications of asymmetric synthesis. Asymmetric reactions are used by synthetic organic chemists in developing shorter routes for the synthesis of complex natural molecules as well as a wide range of drug intermediates. It will be useful to teachers and students at the postgraduate level, open education learners, research scholars and researchers in all universities, institutions and industries.

Contents: Introduction ◆ Terms, definitions and concepts in asymmetric synthesis ◆ Achiral and chiral molecules and their properties ◆ Prochirality

◆ Enantioselective and diastereoselective synthesis ◆ Methods for monitoring enantioselective and diastereoselective synthesis ◆ Methods for inducing asymmetry ◆ Chiral substrate controlled asymmetric reactions: Diastereoselection in acyclic systems ◆ Chiral auxiliary controlled asymmetric reactions—asymmetric α-alkylations ◆ Chiral stoichiometric reagent controlled asymmetric synthesis: Chiral boron reagents ◆ Chiral catalyst mediated asymmetric reactions: Enzymes ◆ Chiral organometallic catalysed asymmetric reactions: Sharpless asymmetric epoxidations, dihydroxylations and aminohydroxylations ◆ Chiral organometallic catalysed asymmetric reactions ◆ Organocatalysts in asymmetric synthesis—chiral additive mediated reactions ◆ Asymmetric aldol reaction ◆ Asymmetric Diels–Alder reactions ◆ Stereoselective synthesis and stereospecific synthesis ◆ *Annexure 1:* Symmetry elements and symmetry operations ◆ *Annexure 2:* Point groups ◆ *Annexure 3:* Molecules with one chiral centre ◆ *Annexure 4:* Molecules with two or more chiral centres

2013	468 pp	Paperback
978-81-7371-892-2		₹ 675.00

Principles of Metallurgical Thermodynamics

Subir Kumar Bose (Late)
Professor, Indian Institute of Technology Kharagpur

Sanat Kumar Roy
Professor, Indian Institute of Technology Kharagpur

The book deals with the thermodynamics of reactive systems, with emphasis on the reactivity of metals and materials being used by metallurgical and materials scientists all over the world. Though the focus is on equilibrium thermodynamics, it also touches upon some methods to incorporate non-equilibrium effects relevant to material scientists. This knowledge will enable students to solve the challenging problems faced during operation in different materials-processing routes. It will also help in the search for new substances that might revolutionize high as well as low temperature applications because of their super-fluid and super-conducting properties, outer space environmental adaptability and more attractive electrical, magnetic and dielectric properties.

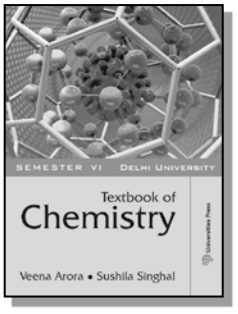
Contents: *Preface* ◆ *Nomenclature, Symbols, Units and Dimensions* ◆ Introduction ◆ Concept of Internal Energy and the First Law of Thermodynamics ◆ Concept of Entropy and the Second Law of Thermodynamics ◆ Temperature Dependence of Heat Capacities, Entropy and the Third Law of Thermodynamics ◆ Homogeneous and Heterogenous Equilibria, Fugacity, Activity and Equilibrium Constant ◆ Ellingham–Richardson Diagrams ◆ Phase Rule and Phase Relations, Phase Stability and Thermochemical Diagrams ◆ Phase Equilibrium and Phase Transformation in Metals Under High Pressures ◆ Thermodynamics of Special Systems ◆ Thermodynamics of Solutions ◆ Thermodynamics of Electrochemical Cells and Solid Electrolytes ◆ Thermodynamics of Point Defects in Binary Inorganic Compounds ◆ Thermodynamics of Surfaces and Interfaces ◆ *Index*

2014	688 pp.	Paperback
978-81-7371-927-1		₹ 750.00

Textbook of Chemistry, Delhi University, Semester VI

Veena Arora
Professor, Deshbandhu College, Kalkaji

Sushila Singhal
Assistant Professor, Deshbandhu College, Kalkaji



- Textbook of Chemistry has been tailored precisely to suit the needs of undergraduate students of Delhi University.
- Learning objectives and key points have been provided for easy revision.
- Relevant figures, tables, labelled diagrams and equations are presented wherever required.
- Exhaustive exercises have been provided at the end of each chapter to test the comprehension of students.

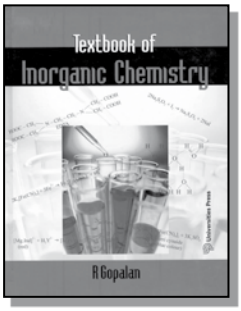
Contents: ***Section A: Inorganic Chemistry*** ◆ Chemistry of 3*d* metals ◆ Organometallic compounds ◆ Bioinorganic chemistry ◆ ***Section B: Organic***

Chemistry ◆ Polynuclear and Heteronuclear aromatic compounds ◆ Amino Acids, Peptides and Proteins ◆ Application of spectroscopy to simple organic molecules

2013	144 pp.	Paperback
978-81-7371-888-5		₹ 175.00

Textbook of Inorganic Chemistry

R Gopalan
Formerly Head, Department of Chemistry, Madras Christian College, Chennai; Director, Sri Malolan College of Arts and Science, Maduranthagam, India



Textbook of Inorganic Chemistry conforms to the syllabus of the B. Sc Chemistry courses of Indian universities. This book not only fulfils the requirements of the syllabus but also caters to the students who would like to delve deeper into the subject. It convinces the student that there is more to inorganic chemistry than equations! This book will serve as a handy tool for teachers to plan their lectures.

Special Features: Objectives are listed to give an overview of the chapter ◆ Involves a systematic and interesting approach ◆ Several worked out problems are provided ◆ 'Boxed' matter on popular aspects are presented ◆ Exhaustive question bank is provided at the end of each chapter

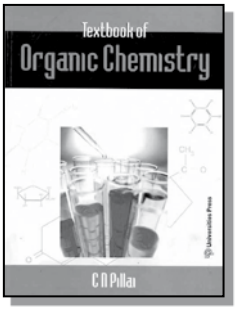
Contents: *Preface* ◆ Chapter 1: Atomic structure: Objectives ◆ Orbitals, electrons and quantum numbers ◆ Pauli's exclusion principle, Hund's rule of maximum multiplicity ◆ The Aufbau principle ◆ Electron configuration, orbital stability and reactivity ◆ Shapes of atomic orbitals ◆ Exercises ◆ Chapter 2: Periodicity of properties: Objectives ◆ Periodic table: a review ◆ Electronic basis for the periodic classification ◆ Periodicity ◆ Lanthanide contraction ◆ Inert pair effect ◆ Diagonal relationship ◆ Exercises ◆ Chapter 3: Principles of inorganic qualitative analysis: Objectives ◆ Introduction (some fundamental concepts) ◆ Acid–base equilibria ◆ Solubility product ◆ Application of common ion effect in qualitative analysis ◆ Types of reactions in inorganic qualitative analysis ◆ Semimicro analysis ◆ Exercises ◆ Chapter 4: Principles of volumetric analysis: Objectives ◆ Introduction ◆ Concentration units ◆ Calculation of equivalent weights ◆ Theories of titrations ◆ Exercises ◆ Chapter 5: Solvents for inorganic reactions: Objectives ◆ Introduction ◆ Protic solvents ◆ Aprotic solvents ◆ Aqueous solvents ◆ Nonaqueous solvents ◆ Liquid ammonia ◆ Solutions of metals in liquid ammonia ◆ Acetic acid ◆ Exercises ◆ Chapter 6: Ionic bond:Objectives ◆ Introduction ◆ Lewis dot symbols ◆ Types of bonds ◆ General properties of ionic compounds ◆ Structures of ionic crystals ◆ Hydration energy ◆ Lattice energy ◆ The Born–Haber cycle ◆ Trends in lattice energies ◆ Applications of lattice energetics ◆ Transitions between electrovalence and covalence ◆ Exercises ◆ Chapter 7: Covalent bond: VB theory: Objectives ◆ Introduction ◆ Theories of bonding ◆ Valence bond theory: formation and properties of covalent bonds ◆ Types of orbital overlap ◆ Hybridisation of orbitals ◆ Bond pairs and lone pairs ◆ Valence shell electron pair repulsion theory (VSEPR Theory) ◆ Partial ionic character of covalent bonds ◆ Directional bonding ◆ Resonance in inorganic molecules ◆ Polar interactions ◆ Exercises ◆ Chapter 8: Covalent bond: Molecular orbital theory: Objectives ◆ Introduction: molecular orbitals ◆ Molecular orbital treatment ◆ Comparison between the VB and the MO theories ◆ Hydrogen bonding ◆ Exercises ◆ Chapter 9: Hydrogen: Objectives ◆ Introduction ◆ Preparation of hydrogen ◆ Physical properties ◆ Reactions of hydrogen ◆ Hydrogen as a fuel ◆ Isotopes of hydrogen ◆ Hydrides: introduction ◆ Classification of the hydrides ◆ Exercises ◆ Chapter 10: Alkali metals: Objectives ◆ Introduction: comparative study of the elements ◆ Occurrence ◆ Metallurgy of alkali elements ◆ Uses of alkali metals ◆ Some compounds of alkali metals ◆ Lithium: anomalous properties ◆ Potpourri ◆ Exercises ◆ Chapter 11: Alkaline earth metals: Objectives ◆ Introduction ◆ Comparative study of the elements ◆ Diagonal relationship ◆ Uses ◆ Some compounds of group 2 elements ◆ Exceptional properties of beryllium ◆ Isolation of group 2 elements ◆ Potpourri ◆ Exercises ◆ Chapter 12: Boron family: Objectives ◆ Comparative account of elements of group 13 ◆ Chemistry of Boron ◆ Boron hydrides (boranes) ◆ Other boron compounds ◆ Chemistry of aluminium ◆ Gallium, indium and thallium ◆ Potpourri ◆ Exercises ◆ Chapter 13: Carbon Family:

Objectives ◆ Introduction ◆ Some compounds of carbon and silicon ◆ Carbides ◆ Silicates ◆ Silicones ◆ Germanium ◆ Tin ◆ Lead ◆ Potpourri ◆ Exercises ◆ Chapter 14: Nitrogen family: Objectives ◆ Introduction ◆ Chemistry of nitrogen ◆ Chemistry of phosphorus ◆ Chemistry of arsenic ◆ Chemistry of antimony ◆ Chemistry of bismuth ◆ Exercises ◆ Chapter 15: Oxygen family: Objectives ◆ Comparative account ◆ Chemistry of oxygen ◆ Chemistry of sulphur ◆ Chemistry of selenium, tellurium and polonium ◆ Potpourri ◆ Exercises ◆ Chapter 16: Halogens: Objectives ◆ Introduction ◆ Comparative account of the halogens ◆ Chemistry of fluorine ◆ Chemistry of chlorine ◆ Chemistry of bromine ◆ Chemistry of iodine ◆ Chemistry of astatine ◆ Exercises ◆ Chapter 17: Noble gases: Objectives ◆ Introduction ◆ Chemistry of noble gases ◆ Chemistry of xenon ◆ Potpourri ◆ Exercises ◆ Chapter 18: Principles of Metallurgy:Objectives ◆ Introduction ◆ Occurrence of metals ◆ Metallurgy ◆ Metals from the sea ◆ Microbial metallurgy ◆ Potpourri ◆ Exercises ◆ Chapter 19: Transition elements: Introduction: Objectives ◆ Introduction ◆ Abundance ◆ Atomic and ionic radii ◆ Magnetic properties ◆ Chemical properties ◆ Differences between the first row and the other two rows ◆ Comparison of transition and representative elements ◆ Exercises ◆ Chapter 20: Chemistry of transition elements: Objectives ◆ Titanium group: comparative study ◆ Vanadium group: comparative study ◆ Chromium group: comparative study ◆ Manganese, technicium, rhenium: comparative study ◆ Iron, cobalt and nickel: comparative study ◆ The platinum metals: comparative study ◆ Copper, silver and gold: comparative study ◆ Zinc, cadmium and mercury: comparative study ◆ Exercises ◆ Chapter 21: Inner transition elements: Objectives ◆ Introduction ◆ Chemistry of lanthanides ◆ Chemistry of actinides ◆ Chemistry of thorium ◆ Chemistry of uranium ◆ Uses of actinides ◆ Potpourri ◆ Exercises ◆ Chapter 22: Coordination compounds: Objectives ◆ Introduction ◆ Nomenclature of metal complexes ◆ Theories of coordination compounds ◆ Spectral characteristics of metal complexes ◆ Magnetic properties of metal complexes ◆ Chelates ◆ Isomerism of metal complexes ◆ Identification of isomeric metal complexes ◆ Applications of coordination compounds ◆ Potpourri ◆ Exercises ◆ Chapter 23: Bioinorganic chemistry: Objectives ◆ Introduction ◆ Transport and storage of oxygen ◆ Electron transfer ◆ Catalysis ◆ Photosynthesis ◆ Vitamin B_{12} (cyanocobalamin) ◆ Inventory of iron in the human body ◆ Metal complexes in the human system ◆ Metal complexes in therapy ◆ The significance of chelation in soil biology ◆ Exercises ◆ Chapter 24: Nuclear chemistry: Objectives ◆ Introduction ◆ Properties of radioactive rays ◆ Laws of radioactive decay ◆ The fundamental particles ◆ The atomic nucleus ◆ Isotopes ◆ Detection and measurement of radiation ◆ Nuclear transmutations ◆ Applications of nuclear science ◆ Exercises ◆ Chapter 25: Industrial inorganic chemistry: Objectives ◆ Surface coatings ◆ Cement ◆ Fuels ◆ Relative merits of fuels ◆ Glass ◆ Exercises ◆ Chapter 26: Environmental Chemistry: Objectives ◆ Introduction ◆ Air pollution ◆ Water pollution ◆ Radionuclides in water ◆ Soil pollution ◆ Pollution by heavy metals ◆ Noise pollution ◆ Rain water harvesting ◆ Exercises ◆ Supplementary Reading ◆ *Index* ◆ *Periodic Table*

2009	960 pp.	Paperback
978-81-7371-752-9		₹ 575.00

Textbook of Organic Chemistry

C N Pillai
Formerly Professor, Department of Chemistry, Indian Institute of Technology Madras, Chennai, India



Textbook of Organic Chemistry is meant for students who learn organic chemistry at the undergraduate level and who have already had exposure to the basics of chemistry, including an introduction to organic chemistry. This book conforms to the syllabus of Indian Universities at the undergraduate level, but can be useful to students at a more advanced level also.

The book has a deductive approach and reduces the need to learn by rote. The objectives are listed at the beginning of every chapter which gives the student an overview of the chapter. Each chapter has been structured in a logical and interesting manner that facilitates easy reading and understanding. This approach has

been developed and perfected by the author over the course of his tenure as a teacher of organic chemistry. At the end of each chapter, exercises are provided which strengthen the students' understanding of the concepts discussed in the text. 'Challenging Questions' are given for those students who want to delve deeper into the subject. Topics of current interest that are related to the subject matter of the chapter are suggested for preparing project reports.

This book represents the hope that students of Indian universities who use it will appreciate that much of organic chemistry can be logically deduced from fundamentals and is amenable to reasonable explanations and deductions.

Special features: Objectives are listed to give an overview of the chapter ◆ Involves a deductive approach ◆ Chapters are developed in a logical and interesting manner ◆ Extensive exercises are provided at the end of each chapter

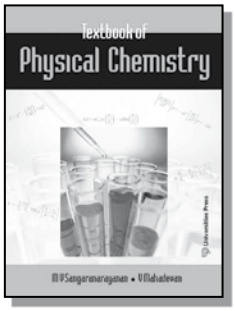
Contents: Basic concepts of bonding in organic chemistry ◆ Nomenclature of organic compounds ◆ Alkanes ◆ Alkenes ◆ Alkynes ◆ Dienes ◆ Polymerisation ◆ Cycloalkanes ◆ Aromatic hydrocarbons and aromaticity ◆ Polynuclear aromatic hydrocarbons ◆ Aliphatic nucleophilic substitution reactions ◆ Elimination reactions ◆ Determination of structure using spectroscopy ◆ Alcohols ◆ Phenols ◆ Carbonyl chemistry ◆ Carboxylic acids ◆ Nitrogen containing compounds ◆ Molecular rearrangements ◆ Heterocyclic compounds ◆ Stereochemistry – I ◆ Stereochemistry – II ◆ Bioorganic chemistry – carbohydrates and vitamins (Natural products-I) ◆ Bioorganic chemistry – Aminoacids, proteins and nucleic acids (Natural Products-II) ◆ Terpenoids and alkaloids (Natural Products-III) ◆ Dyes ◆ Supplementary reading ◆ *Index*

2010	640 pp.	Paperback
978-81-7371-689-8		₹ 575.00

Textbook of Physical Chemistry

M V Sangaranarayanan
Professor, Department of Chemistry, Indian Institute of Technology Madras, Chennai, India

V Mahadevan
Formerly Professor, Department of Chemistry, Indian Institute of Technology Madras, Chennai, India



Textbook of Physical Chemistry, together with the companion books on organic chemistry and inorganic chemistry, meets the complete requirements of undergraduate students of chemistry across India. In a book comprising all the classical topics which span physical chemistry including chemical kinetics, electrochemistry and thermodynamics among others, uniformity in the depth of coverage of each topic is not easy to attain in view of the disjointed pace of growth of each discipline. Nevertheless, care has been taken to ensure that the material in this book will sustain the interest of students and motivate them to learn physical chemistry. In order to aid students, every chapter contains the Objectives at the beginning and Key Points at the end. Various aspects of physical chemistry are dealt with in a lucid manner and interesting related matter is highlighted in boxes. The derivations are given in a comprehensible manner. Since physical chemistry involves numericals, several worked examples complement the text. The exercises at the end of each chapter, in particular, will be extremely valuable to sharpen the problem-solving skills and direct the student towards appreciating the nuances of physical chemistry.

Special Features: Objectives are listed to give an overview of the chapter ◆ Chapters are developed in a logical and interesting manner ◆ Derivations are kept simple ◆ Interesting matter is highlighted in grey boxes ◆ Numerous worked out examples complement the text ◆ Exercises at the end of each chapter to sharpen the problem-solving skills ◆ Key points at the end of each chapter to aid revision

Contents: Quantum Chemistry ◆ Gaseous State ◆ Liquid State ◆ Solid State ◆ Colloidal State ◆

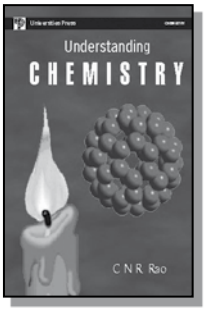
First Law of Thermodynamics ◆ Second Law of Thermodynamics ◆ Third Law of Thermodynamics ◆ Solutions ◆ Phase Equilibria ◆ Chemical Kinetics ◆ Surface Chemistry and Catalysis ◆ Photochemistry ◆ Electrochemistry—Ionics ◆ Electrochemical Cells ◆ Polarography ◆ Group Theory

2011	592 pp.	Paperback
978-81-7371-726-0		₹ 495.00

Understanding Chemistry

C N R Rao

Linus Pauling Research Professor & Honorary President
Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India



This supplementary book and multimedia package for students from senior school and first year B.Sc. is intended to bring out the excitement of chemistry and encourage more students to pursue this subject further. It explains the Hows and Whys of chemistry to whet the appetite of a good student.

1999	252 pp.	Paperback
978-81-7371-250-0		₹ 450.00

Environmental Science

Dimensions in Environmental and Ecological Economics

Amita Kumari Choudhury (Ed.)
Reader, P G Department of Economics, Berhampur University, Ganjam, India

Nirmal Chandra Sahu (Ed.)
Reader, Department of Economics, Berhampur University, Ganjam, India

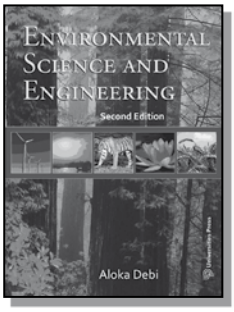
Environmental and ecological economics is a transdisciplinary branch of knowledge. It covers the study of the processess of simultaneity involved in the functioning of the economy and the environmental/ecological system, with a view to promoting human well-being sustainably. During the last three decades numerous difficult environmental problems of humanity have been explored and analysed which have enlarged its frontiers. Yet the vast mass of literature on the subject remain diffused in a variety of study materials not easily accessible to students. *Besides covering the paradigmatic bases of environmental, ecological and natural resource economics, this book discusses the economic dimensions of and approaches to pollution,*

environmental and ecosystem management, biodiversity, global warming, energy and resource use, environmental evaluation and sustainable development.

Available in e-book format only.
For details, visit www.universitiespress.com.

Environmental Science and Engineering, Second Edition

Aloka Debi
Retired Professor of Chemistry, Kingston Engineering College, Kolkata
Retired Senior Lecturer in Chemistry and Environmental Science, Government Polytechnic, Kolkata.



Environmental Science and Engineering has been specially designed to explain what the environment is, how it is polluted and destroyed, the effects of pollution, and how effectively the damage to the environment can be controlled. The second edition of the book incorporates more insights into prevention against pollution, new case studies, as well as a chapter on 'Recent Sources of Pollution' that includes marine, thermal and nuclear pollution.

Special Features:

- discusses the **acts and laws** that govern pollution
- provides a number of relevant **case studies**
- suggests **solutions** to the environmental problems
- provides **extensive exercises**
- is based on the **undergraduate syllabus prescribed by the UGC** for engineering students throughout India

2012	268 pp.	Paperback
978-81-7371-811-3		₹ 295.00

Questions and Answers in Environmental Science

S K Basu
Graduate Student Researcher, University of Lethbridge, Canada

A K De
Calcutta University, Kolkata, India

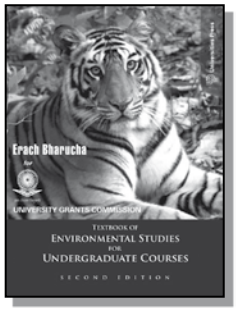
The sustainable future of humanity lies in understanding the earth and its environment. For this reason, environmental science has a purview that overlaps several other disciplines; from biology to economics, geology to sociology, every subject has a significant relationship with some area of environmental science. However, it is often difficult, time-consuming and exhaustive to keep pace with new trends in such a broad-based field.

Contents: *Preface* ◆ Ecology and Ecosystems ◆ Forestry and Agriculture ◆ Environmental Biology ◆ Environmental Chemistry ◆ Environmental physics ◆ Biostatistics ◆ Environmental Geology ◆ Disaster Management ◆ Population Biology ◆ Conventional Energy Resources ◆ Non-Conventional Energy Resources ◆ Population Studies ◆ Conversation Methods ◆ Environmental Legislation and Planning ◆ *Abbreviations* ◆ *Test your Knowledge* ◆ *Selected Reading*

2005	396 pp.	Paperback
978-81-7371-547-1		₹ 450.00

Textbook of Environmental Studies for Undergraduate Courses
(Second Edition)

Erach Bharucha
Director, Bharati Vidyapeeth Institute of Environment Education and Research, Pune, India



'Environmental studies' has become an undisputed requirement in the **syllabi of all undergraduate courses**. The first edition of this textbook was the outcome of the efforts of the Expert Committee constituted by the UGC in response to the directive given by the Supreme Court of India, on the necessity for a basic course on the environment. The Second Edition has incorporated the feedback from the students and faculty to make it more user-friendly.

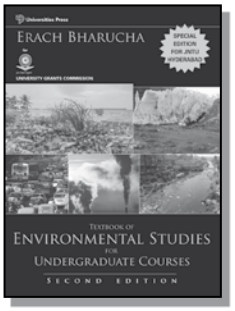
Salient Features: Tailored precisely to suit the curriculum set down by the UGC ◆ Relevant new case studies, *examples, photographs and figures* make the book student and teacher-friendly ◆ The subject matter is presented in very simple and lucid language which makes the concepts clear to *Engineering, Arts, Science and Commerce students* alike ◆ The important aspect of *fieldwork* is included in Unit 8 ◆ *Flowcharts* have been introduced wherever required so that concepts are clearer in the students' minds ◆ The refrain of 'sustainable living' runs though the entire book, thus awakening the students to reality and suggests solutions for commonly encountered environmental issues ◆ *Questions* are provided at the end of each chapter to test comprehension.

Contents: *Foreword* ◆ *Preface to the Second Edition* ◆ *Preface to the First Edition* ◆ *Acknowledgements* ◆ Vision Core Module Syllabus for Environmental Studies for Undergraduate Courses of all Branches of Higher Education ◆ The Multidisciplinary Nature of Environmental Studies ◆ Natural Resources ◆ Ecosystems ◆ Biodiversity ◆ Pollution ◆ Social Issues and the Environment ◆ Human Population and the Environment ◆ Field Work ◆ The Need for Sustainable Development and Biodiversity Conservation for a New Emerging India ◆ *Multiple Choice Questions* ◆ *Websites* ◆ *Further Reading* ◆ *Index*

2013 | 324 pp. | Paperback
978-81-7371-862-5 | ₹ 250.00

Textbook of Environmental Studies for Undergraduate Courses; Special Edition for JNTU Hyderabad

Erach Bharucha
Director, Bharati Vidyapeeth Institute of Environment Education and Research, Pune, India



'Environmental studies' has become an undisputed requirement in the syllabi of all undergraduate courses. The first edition of this textbook was the outcome of the efforts of the Expert Committee constituted by the UGC in response to the directive given by the Supreme Court of India, on the necessity for a basic course on the environment. The Second Edition has incorporated the feedback from the students and faculty to make it more user-friendly. In this JNTU specific edition, apart from focus on sustainable development and the ecological footprint, several topics that were specifically required as per the JNTU syllabus have been added. New relevant tables, case studies and flowcharts have also been included.

Salient Features:

- Tailored precisely to suit the curriculum set down by JNTU Hyderabad.
- Relevant new case studies, examples, photographs and figures make the book student and teacher-friendly.
- The important aspect of 'fieldwork' is included in Unit 8.
- Flowcharts have been introduced wherever required so that concepts are clearer in the students'minds.
- The refrain of 'sustainable living' runs though the entire book, thus awakening the students to reality and suggests solutions for commonly encountered environmental issues.
- Questions are provided at the end of each chapter to test comprehension.
- Includes previous years' University question papers.

Contents: *Foreword* ◆ *Preface to the JNTU Hyderabad Edition* ◆ *Preface to the Second Edition* ◆ *Preface to the First Edition* ◆ *Acknowledgements* ◆ Vision ◆ Core Module Syllabus for Environmental Studies for

Undergraduate Courses of all Branches of Higher Education ◆ Roadmap to syllabus ◆ Unit 1: The Multidisciplinary Nature of Environmental Studies ◆ Unit 2: Ecosystems ◆ Unit 3: Natural Resources ◆ Unit 4: Biodiversity ◆ Unit 5: Pollution ◆ Unit 6: Social Issues and the Environment ◆ Unit 7: Human Population and the Environment ◆ Unit 8: Field Work ◆ The Need for Sustainable Development and Biodiversity Conservation for a New Emerging India ◆ Multiple Choice Questions ◆ Question Papers ◆ Websites ◆ *Further Reading* ◆ *Index*

2014	352 pp.	Paperback
978-81-7371-943-1		₹ 225.00

Materials Science

Basic Course in Crystallography, A

J A K Tareen
Formerly Vice Chancellor, Pondicherry University and Kashmir University; (currently residing in) Mysore, India

T R N Kutty
Chairman, Material Research Laboratory, Indian Institute of Science, Bengaluru, India

Crystallography is a multidisciplinary subject, forming a *part of courses in Materials Science, Chemistry, Condensed Matter Physics, Metallurgy, Ceramics, Geology, Mineralogy, and some disciplines in Engineering*. The most important feature of this book is the logical development of the subject, the crucial key word being symmetry in point groups as well as the translational distribution of molecules to generate the long-range order. A *large number of illustrations* complement the lucid narration. *Worked examples and exercises are included* in most *chapters*.

Contents: External Symmetry ◆ Description of Crystals ◆ Internal Symmetry and Crystal Lattice ◆ Structural Principles in Crystals ◆ The Physical Properties of Crystals ◆ Diffraction By Crystals – X-ray Crystallography ◆ *Bibliography* ◆ *Subject* ◆ *Index*

2000	176 pp.	Paperback
978-81-7371-360-6		₹ 425.00

Universities Press-IIM Series in Metallurgy and Materials Science

The study of metallurgy and materials science is vital for developing advanced materials for diverse applications. In the last decade, the progress in this field has been rapid and extensive. To make this growing volume of knowledge available, an initiative to publish a series of books in Metallurgy and Materials Science was taken during the Diamond Jubilee year of the Indian Institute of Metals (IIM) in the year 2006. This series is co-published by Universities Press, associate of Orient Blackswan, with its long tradition of publication of quality books in engineering and sciences, and, IIM which is a premier professional body representing an eminent and dynamic group of metallurgists and materials scientists from R&D institutions, academia and industry in India.

This series includes different categories of publications—textbooks to satisfy the requirements of undergraduates and beginners in the field, monographs on select topics by experts in the field, and proceedings of select international conferences organized by IIM after mandatory peer review. These publications will serve as a source of knowledge to a wide spectrum of students, engineers, researchers and industrialists in the field of metallurgy and materials science.

Advances in Manufacturing Technology

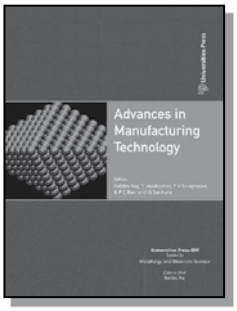
Baldev Raj
President, PSG Institutions, India.

T Jayakumar
Outstanding Scientist and Director, Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

P V Sivaprasad
General Manager, Sandvik Materials Technology R&D, PSandvik Asia Pvt Ltd, Pune, India

B P C Rao
Head, Electromagnetics, Modelling, Sensors and Imaging Section, Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

G Sasikala
Head, Materials Mechanics Section, Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India



The book covers a broad spectrum of topics spanning the entire world of manufacturing—from the development of technologies to the realisation of products—their inspection and enterprise, from the selection of raw materials to product-testing and from methods in welding to artificial intelligence and robotics. It is organised thematically into four sections:

1. Trends in manufacturing technology
2. Modelling and simulation
3. Non-destructive evaluation
4. Product development and technology enterprise

Latest breakthroughs in the development of processes and products have been presented.

A total of 40 contributions are included from world-renowned experts from around the world.

Contents: *Foreword* ◆ *Preface* ◆ *About the Series* ◆ *Editorial Advisory Board* ◆ A Perspective on Engineering Manufacturing ◆ Recent Developments in Automotive Manufacturing using Advanced High-strength Steels ◆ Hydroforming: An Emerging Manufacturing Technology ◆ Review of Recent Developments in Deep Drawing Process ◆ Advances in Metal Forming Technology in the Manufacture of Reactor Core Components ◆ Mechanical Micromachining: Technology and Future ◆ Development of Investment Casting Dies for Aerospace Turbine Blades and Vanes using CAD/CAM Techniques ◆ Semisolid Metal Processing for Near Net Shape Forming ◆ Hybrid Layered Manufacturing of Metallic Objects ◆ The Importance of Interdisciplinary Research and Vision in the Evolution of New Engineering Technologies ◆ Investigations on Machining of Microchannels on Silicon Water using Micro EDM ◆ The Diamond Pyramid Structure Observed on the Surface of Electroless Copper Deposit and Its Atom Model ◆ Finite Element Simulation of Crack Growth in Metal Forming Process using Gurson Model ◆ Numerical Investigation of Ramp and Constant Pressurization System during Tube Crushing Process ◆ In Pursuit of Efficient Industrial Thermal Processing: Innovative Concepts, Integrated Models and Process Optimization ◆ Optimization of Process Parameters for Abrasive Water Jet Machining of Kevlar–Epoxy Composites Using Taguchi Method and Response Surface ◆ NDT-aided Production Processes ◆ Advances in Manufacturing Technology—Role of NDE ◆ Advanced NDE Techniques for Manufacturing Applications ◆ Ultrasonic Examination of Austenitic Stainless Steel Welds using EMATs ◆ Real-time Processing of NDT Data for Inline Control of Production Processes ◆ Multi-NDEInvestigations on Zircaloy-4 Rods for ensuring Manufacturing Quality ◆ Non-Contact Ultrasound Sensors for Process Measurements in Composite Fabrication ◆ Meeting the Challenges in Closing the Nuclear Fuel Cycle with Automation, Robotics and Remote Handling Technology ◆ Aluminium-based in situ Composites for Automotive and Other Light-Weight High-Strength Applications ◆ The Factory of the Future in the Knowledge Economy ◆ The Role of Manufacturing in the Internationalization Strategies of Multinationals from Emerging Economies ◆ Cost Reduction Measures in Mega Projects ◆ Development and Automation of High-Performance Arc Welding Processes ◆ Materials Science and Engineering for the Next Generation ◆ Challenges in Design and Manufacturing Technology Development of Grid Plate for PFBR ◆ Manufacture of Sodium Rig Components ◆ Alternative Approach in the Manufacture of the Steering Knuckle of an Axle with Independent Suspension ◆ Development of Manufacturing Technology for High-speed Centrifuges ◆ ISI Systems for Fast Reactor Fuel Reprocessing Plants—A Collective Panorama ◆ Manufacture of Sodium-to-Air Heat Exchangers ◆ Challenges Faced in Local PWHT of Tube-to-tube Sheet Joints for Prototype Fast Breeder Reactor Steam Generator ◆ Optimization of Friction Stir Welding Parameters for Precipitation-Hardenable Aluminium Alloys 7020 and 6061 505 ◆ Electroless Ni–P Microcoatings: Processing, Optimization and

Characterization Techniques ◆ Development of Rotor for Rotary Engine: A Challenge ◆ *Index*

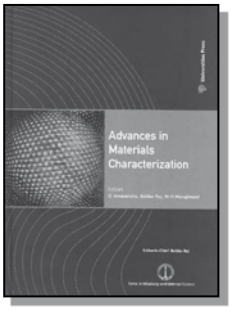
2012	556 pp.	Hardback
978-81-7371-755-0		₹ 1550.00

Advances in Materials Characterization

G Amarendra
Senior Scientist, Materials Science Division, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

Baldev Raj
Distinguished Scientist and Director, Indira Gandhi Centre for Atomic Research, Kalapakkam, India

M H Manghnani
Professor, University of Hawali, USA



Materials Characterization is an important area of fundamentals and technological interests. A variety of experimental techniques for characterizing the physical and chemical properties of materials have been developed over the years. This volume Intends to provide an overview of the advances in this area and an in depth review of the latest techniques. It comprises review articles written by experts in these areas, providing an introduction and overview of the techniques as well as a demonstration of their application to select problems.

2006	228 pp.	Hardback
978-81-7371-568-6		₹ 650.00

Advances in Stainless Steels

Baldev Raj
Distinguished Scientist and Director, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

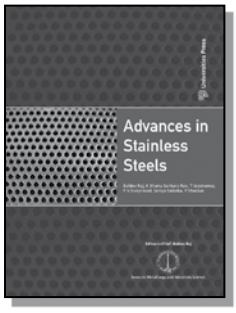
K Bhanu Sankara Rao
Professor and Dean, School of Engineering Sciences and Technology, University of Hyderabad, India

T Jayakumar
Outstanding Scientist and Director, Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

P V Sivaprasad
Deputy General Manager, Sandvik Materials Technology R&D, Pune, India

Saroja Saibaba
Head, Nuclear Materials and Microscopy Section, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

P Shankar
Principal, Nehru College of Engineering and Technology, Coimbatore, India



The book focuses on various facets—processing, component design, properties, fabrication and applications—of the wonder alloy: stainless steel. It covers a broad spectrum of topics spanning the entire life cycle of stainless steel—from alloy design and characterization to engineering design, fabrication, mechanical properties, corrosion, quality assurance of components, in-service performance assessment, life prediction and failure analysis of materials and components. The contents provide useful feedback for further developments aimed at effective utilization of this class of materials. The book comprises articles that bring out contemporary developments in stainless steels and is thematically classified into:

- Component design, modelling and structural integrity
- Manufacturing technology
- Property evaluation
- Alloy development and applications
- Non-destructive evaluation methods

- Corrosion and surface modification

The articles are of high relevance and interest to manufacturers, fabricators, researchers, designers, suppliers and end users of stainless steel, and serve as a valuable source for everyday reference and also as a guide for providing solutions for challenges connected with alloy design, material selection, melting, processing, fabrication, metallurgy and applications.

2010	692 pp.	Hardback
978-81-7371-696-6		₹ 2,250.00

First Course in Iron and Steelmaking

Dipak Mazumdar
Distinguished Ministry of Steel Chair Professorship, IIT Kanpur

According to the author, the requirements for a text of this kind are: it should be concise and contemporary, less descriptive, based on fundamentals and sufficiently quantitative. This is because courses on extractive metallurgy, mineral processing, fuels, furnaces and refractories have been dispensed with to accommodate newer subjects related to structure, properties and processing of different kinds of emerging and functional materials such as refractories, polymers and composites. *A First Course in Iron and Steelmaking* is a textbook catering to undergraduate metallurgical engineering students that fulfils all these criteria. The author's experience in more than a dozen domestic steel and refractory industries has added flavour and value to the concepts presented in the book.

Salient features:

- It is a comprehensive book featuring the status of the Indian iron and steel industry, the processes followed in extraction, the traditional, contemporary as well as those expected to be followed in the future.
- Each process has been described with their advantages and disadvantages cited.
- Contains a large number of numerical worked examples as well as exercises.
- Exercises are structured to help students in developing their understanding of fundamental concepts through self-study.
- Includes appropriate figures, diagrams and tables close to the point of reference.
- Excellent resource material has been provided in each chapter to assist readers to study the subject in greater detail.

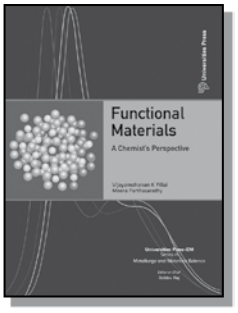
Contents: *Preface* ◆ An Overview of Iron and Steelmaking ◆ The Science Base of Iron and Steelmaking ◆ Ironmaking ◆ Steady State Material and Enthalpy Balance in an Iron Blast Furnace ◆ Primary Steelmaking ◆ De-oxidation, Ladle and Tundish Metallurgy ◆ Solidification of Steel, Casting Processes and Finishing Operations ◆ Iron and Steelmaking in India ◆ *Index*

2014	396 pp.	Paperback
978-81-7371-939-4		₹ 800.00

Functional Materials: A Chemist's Perspective

Vijayamohanan K Pillai
Director, CSIR-Central Electrochemical Research Institute, Karaikudi; Director (Additional Charge)CSIR - National Chemical Laboratory,
Pune, India

Meera Parthasarathy
Assistant Professor, Department of Chemistry, School of Chemical & Biotechnology, SASTRA University, Thanjavur, India



This book introduces the reader to the basic concepts, lines of development, main characteristics

and applications of functional materials. Several examples of functional materials developed during the last two decades are used to illustrate their versatility and range of function. This book examines the preparation and characterization of some of these materials from the perspective of a synthetic chemist. Although research in this area is multidisciplinary, the chemistry of these materials is given special importance. *Existing and emerging applications of functional materials in energy storage, polymer electronics, chemical sensors, nanobiotechnology and medicine are highlighted*.

Salient Features: Selection of topics based on curriculum and current interest ◆ Numerous examples and illustrations ◆ Colour plates to enhance understanding ◆ Further Reading and Exercises at the end of every chapter

This book lucidly explains various aspects of functional materials, beginning from fundamental definitions to specific applications and methods of introducing functions, emerging synthetic tools and many attendant challenges. The authors admirably unravel the subject's multi-disciplinary breadth and convey their smart understanding of the new innovative trends in the design, synthesis and manufacture of new materials. They elegantly combine various aspects of molecular design, material preparation, organization, characterization and applications with many fascinating, real-life examples.

— R A Mashelkar

National Research Professor, CSIR Bhatnagar Fellow & President, Global Research Alliance National Chemical Laboratory, Pune, India

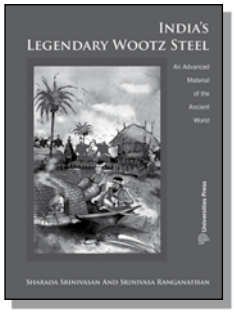
Contents: *Foreword ◆ Preface ◆ Acknowledgements ◆ About the Series ◆ Editorial Advisory Board ◆* Functional Materials: A Virtual Tour ◆ Classification of Functional Materials I Molecular Self-Assembly ◆ Bioinspired Materials ◆ Smart Materials ◆ Functional Materials for Sustainable Energy ◆ Materials for Polymer Electronics ◆ Functional Nanocomposites ◆ Going Beyond Functional Materials—Future Directions ◆ *List of Colour Plates*

2012	408 pp.	Paperback
978-81-7371-768-0		₹ 550.00

India's Legendary Wootz Steel

Sharada Srinivasan
Professor, National Institute of Advanced Studies, Indian Institute of Science, Bengaluru, India

Srinivasa Ranganathan
Indian Institute of Science, National Institute of Advanced Studies, Bengaluru, India



A fascinating history of India's legendary high-grade steel—wootz steel—which was highly prized and much sought after across the world for over two millennia. Wootz steel was used to make the fabled Damascus blades.

Although Indian wootz steel was such an important material in the metallurgical history of mankind, there are no books devoted to Indian contributions. First brought out by Tata Steel in November 2004 as a celebration of the twin centenaries of J.N. Tata and J.R.D.Tata, the book has been widely acclaimed. *It is both scholarly as well as highly readable at the level of popular archaeo-science*.

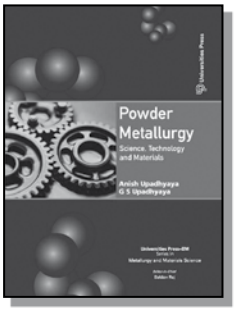
Original cartoons that are both colourful and humorous have been added to make the book more interesting and bring alive the times in which important developments were made.

2014	160 pp.	Hardback
978-81-7371-721-5		₹ 1,250.00

Powder Metallurgy: Science, Technology and Materials

Anish Upadhyaya
Associate Professor, Department of Materials Science and Engineering, IIT Kanpur, Kanpur

G S Upadhyaya
Retired Professor, Department of Materials and Metallurgical Engineering, IIT Kanpur, Kanpur



Since the 1920s modern powder metallurgy has been used to produce a wide range of structural Powder Metallurgy (PM) components, self-lubricating bearings and cutting tools. The conventional method involves the production of metal powders, and manufacture of useful objects from such powders by die compaction and sintering. Wrought products are also produced by this route. Powder injection moulding permits the production of stronger, more uniform and more complex PM parts. A detailed discussion of PM materials and products is given in the book.

The book is based on the experience of teaching undergraduate and postgraduate engineering students over several years. It serves as a textbook (both for undergraduate and postgraduate courses in engineering) and also as a handy reference book for engineers in the PM industry. In order to aid and broaden the problem-solving capability of students, worked examples are included in each chapter. In the end of chapter exercises, a variety of questions and problems are included.

Contents: Introduction ◆ Powder Production and Characterisation ◆ Powder Treatment ◆ Powder Compaction ◆ Sintering ◆ Full Density Processing ◆ Secondary Treatments of P/M parts ◆ Applications ◆ Holistic View of P/M Science and Technology ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Powder Production** ◆ Chemical Methods ◆ Electrolytic Method ◆ Evaporation Method ◆ Mechanical Method ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Powder Characterisation** ◆ Chemical Composition and Structure ◆ Particle Size and Shape ◆ Particle Surface Topography ◆ Surface Area ◆ Apparent and Tap Densities ◆ Flow Rate ◆ Compressibility ◆ Green Strength ◆ Pyrophorocity and Toxicity ◆ Powder Production Methods and Characteristics Relations ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Powder Treatment** ◆ Annealing and Diffusion Alloying ◆ Powder Mixing / Milling ◆ Granulation 4.4 Coating on Metal Powders ◆ Powder Degassing ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Powder Compaction** 5.1 Basic Aspects ◆ Die Compaction ◆ Warm Compaction ◆ Wet Compaction ◆ Cold Isostatic Compaction ◆ Powder Roll Compaction ◆ Powder Extrusion ◆ Injection Moulding ◆ Green Part Materials Handling ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Pressureless Powder Shaping** ◆ Slip Casting / Slurry Moulding ◆ Tape Casting ◆ Electrophoretic Deposition ◆ Spray Deposition / Forming ◆ Solid Preform Fabrication ◆ Questions and Problems ◆ Further Readings ◆ **Sintering Theory** ◆ Solid State Sintering ◆ Activated Solid State Sintering ◆ Liquid Phase Sintering ◆ Activated Liquid Phase Sintering ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Sintering Technology** ◆ Debinding of Powder Compacts ◆ Loose Sintering ◆ Sintering Furnaces ◆ Sintering Zones ◆ Rapid Sintering Processes ◆ Sintering Atmosphere ◆ Sintering Atmosphere Analysis and Control ◆ Process Variables ◆ Materials Variables ◆ Dimensional Changes ◆ Microstructural Changes ◆ Infiltration ◆ Sintered Parts Materials Handling ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Full Density Consolidation** ◆ Dynamic Powder Compaction ◆ Hot Pressing ◆ Hot Isostatic Pressing ◆ Powder Hot Extrusion ◆ Powder Hot Forging ◆ Powder Preform Rolling ◆ Spark Sintering ◆ Questions and Problems ◆ Further Readings ◆ **Secondary Treatments** ◆ Sizing ◆ Machining ◆ Impregnation ◆ Surface Engineering ◆ Heat Treatment ◆ Joining ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Testing and Quality Control of P/M Materials and Products** ◆ Sampling ◆ Density ◆ Sintered Porosity and Pore Distribution ◆ Structure of Sintered Materials ◆ Differential Thermal Analysis ◆ Thermal Expansion ◆ Thermal Shock Resistance ◆ Thermal Conductivity ◆ Optical Properties ◆ Hardness ◆ Strength ◆ Impact Test ◆ Fracture Toughness ◆ Fatigue Behaviour ◆ Creep Behaviour ◆ Fracture Behaviour ◆ Wear Resistance ◆ Electrical Resistivity ◆ Magnetic Properties ◆ Corrosion Resistance ◆ Quality Control Aspects of P/M Parts ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Metallic and Ceramic P/M Materials** ◆ Low Alloy Steels ◆ High Alloy Steels ◆ Copper Alloys ◆ Aluminium Alloys ◆ Silver Alloys ◆ Nickel Alloys ◆ Titanium Alloys ◆ Refractory Metals and Alloys ◆ Intermetallics ◆ Ceramic Systems ◆ Cermets ◆ Ceramic–Ceramic Composites ◆ *Questions and*

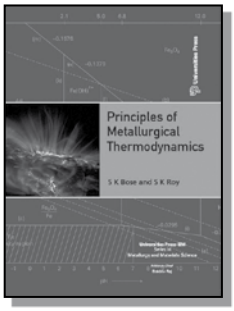
Problems ◆ *Further Readings* ◆ **P/M Applications** ◆ Structural Applications ◆ Machine Tool Applications ◆ Power Generation Applications ◆ Filter Applications ◆ Friction Applications ◆ Electrical Applications ◆ Magnetic Applications ◆ Oxygen Sensor Applications ◆ Thermal Management Applications ◆ Bio-Implant Applications ◆ *Questions and Problems* ◆ *Further Readings* ◆ **Techno-economics of P/M Processing** ◆ Costs of Metal and Ceramic Powders ◆ Economics of Metal Powder Production Methods ◆ Economic Aspects of Sintered Parts ◆ Energy Aspects of Sintering Process ◆ Economic Aspects of Full Density Consolidation ◆ Economic Aspects of Powder Injection Moulding ◆ Economic Aspects of Secondary Treatments ◆ Economic Aspects of Outsourcing ◆ *Questions and Problems* ◆ *Further Readings*

2011	536 pp.	Paperback
978-81-7371-717-8		₹ 675.00

Principles of Metallurgical Thermodynamics

Subir Kumar Bose (Late)
Professor, IIT Kharagpur, Kharagpur

Sanat Kumar Roy
Professor, IIT Kharagpur, Kharagpur



The book deals with the thermodynamics of reactive systems, with emphasis on the reactivity of metals and materials being used by metallurgical and materials scientists all over the world. Though the focus is on equilibrium thermodynamics, it also touches upon some methods to incorporate non-equilibrium effects relevant to material scientists. This knowledge will enable students to solve the challenging problems faced during operation in different materials-processing routes. It will also help in the search for new substances that might revolutionize high as well as low temperature applications because of their super-fluid and super-conducting properties, outer space environmental adaptability and more attractive electrical, magnetic and dielectric properties.

Salient features:

- Contains a large number of numerical solved problems as well as exercises (with answers).
- Structures the exercises to help students in developing their understanding of fundamental concepts through self study.
- Introduces new topics not commonly found in other textbooks on metallurgical thermodynamics,
- Includes appropriate figures, diagrams and tables close to the point of reference.
- Provides references to assist readers to find the source material for further studies.

Contents: *Preface* ◆ *Nomenclature, Symbols, Units and Dimensions* ◆ Introduction ◆ Concept of Internal Energy and the First Law of Thermodynamics ◆ Concept of Entropy and the Second Law of Thermodynamics ◆ Temperature Dependence of Heat Capacities, Entropy and the Third Law of Thermodynamics ◆ Homogeneous and Heterogenous Equilibria, Fugacity, Activity and Equilibrium Constant ◆ Ellingham–Richardson Diagrams ◆ Phase Rule and Phase Relations, Phase Stability and Thermochemical Diagrams ◆ Phase Equilibrium and Phase Transformation in Metals Under High Pressures ◆ Thermodynamics of Special Systems ◆ Thermodynamics of Solutions ◆ Thermodynamics of Electrochemical Cells and Solid Electrolytes ◆ Thermodynamics of Point Defects in Binary Inorganic Compounds ◆ Thermodynamics of Surfaces and Interfaces ◆ *Index*

2014	688 pp.	Paperback
978-81-7371-927-1		₹ 750.00

Textbook of Nanoscience and Nanotechnology

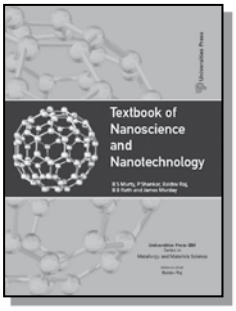
B S Murty
Professor, Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

P Shankar
Principal, Saveetha School of Engineering, Saveetha University, Chennai, India

Baldev Raj
Director, National institute of Advanced Studies, Indian Institute of Science Campus, Bengaluru, India

B B Rath
Director, Materials Science and Component Technology, Naval Research Laboratory, Washington DC, USA

James Murday
Naval Research Laboratory, Washington DC, USA



It is a book for beginners in the field of nanoscience and nanotechnology and is *suitable for both undergraduate and postgraduate students who are taking a course in nanoscience and nanotechnology*. It provides an introduction to the terminology and historical perspectives of this domain of science, discusses the effects of size and the unique and widely differing properties of nanomaterials in comparison to bulk materials, and describes the advances in methods of synthesis, and consolidation and characterization techniques. The applications of nanoscience and technology and emerging materials and technologies are also presented in the book.

Special Features: Current data and research findings, with special emphasis on Indian sources, included in every chapter ◆ Exercises and problems at the end of each chapter ◆ Glossary and Index

Contents: The big world of nanomaterials ◆ Unique properties of nanomaterials ◆ Synthesis routes ◆ Applications of nanomaterials ◆ Tools to characterize nanomaterials ◆ Nanostructured materials with high application potential ◆ Concerns and challenges of nanotechnology

2011 | 254 pp. | Paperback
978-81-7371-738-3 | ₹ 450.00

Pharmaceutical Science

Chemistry of Natural Products: A Unified Approach
(Second Edition)

N R Krishnaswamy
Formerly Professor, Department of Chemistry, All India Institute of Medical Sciences, New Delhi; Sri Sathya Sai Institute of Higher Learning, Puttaparthi, India

See page 13

Chemistry of Natural Products: A Laboratory Handbook

N R Krishnaswamy
Formerly Professor, Department of Chemistry, All India Institute of Medical Sciences, New Delhi; Sri Sathya Sai Institute of Higher Learning, Puttaparthi, India

See page 13

Conceptual Pharmacology

P Jagadish Prasad
Formerly Professor and Head, Department of Pharmacology; Principal, Kakatiya Medical College, Warangal, India

Pharmacology is currently one of the fast-growing branches of medical science. This book was written to provide students basic information in pharmacology with emphasis on clinical aspects and pharmacological approaches to drug-based treatment Information about the drug is given in detail and includes pharmacokinetics, pharmacodynamics, clinical indications, adverse drug reactions and drug interactions.

Special Features: Self-assessment questions at the end of each chapter d Numerous illustrations: chemical structures and medical drawings d Unique topics like dermatological pharmacology, drug use in pregnancy, therapeutic drug monitoring and rational drug use

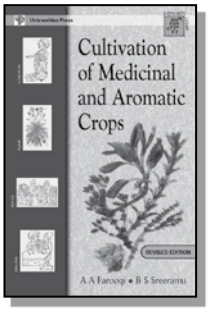
Contents: General Pharmacology ◆ Autonomic Nervous System ◆ Cardiovascular System ◆ Central Nervous System ◆ Autacoids ◆ Hemopoietic System ◆ Diuretics ◆ Chemotherapeutic Agents ◆

Gastrointestinal System ◆ Hormones ◆ Respiratory System Disorders ◆ Immune Pharmacology ◆ Drugs Acting on the Uterus ◆ Drug Therapy of Hyperlipidemias ◆ Toxicology ◆ Drug Use during Pregnancy ◆ Dermatological Pharmacology ◆ *Vitamins* ◆ *Index*

2010	700 pp.	Paperback
978-81-7371-679-9		₹ 795.00

Cultivation of Medicinal and Aromatic Crops

A A Farooqi & B S Sreeramu



In recent years, there has been a tremendous growth of interest in plant-based drugs, pharmaceuticals, perfumery products, cosmetics and aromatic compounds used in food flavours, fragrances, and natural colours. An attempt has been made in this book to provide all possible pooled information including the research findings that have been generated by the Division of Horticultural Sciences, the University of Agricultural Sciences, the Indian Institute of Horticultural Research, the Central Institute of Medicinal and Aromatic Crops, the National Botanical Research Institute, the Regional Research Laboratories, ICAR and others.

2004	344 pp.	Paperback
978-81-7371-504-4		₹ 1225.00

Essentials of Physical Chemistry and Pharmacy

H J Arnikar
Professor Emeritus, Department of Chemistry, University of Poona; Fellow of the Royal Society of Chemistry; Honorary Professor, Poona College of Pharmacy, Pune, India

S S Kadam
Pharmacy Education

K N Gujar
Senior Assistant Professor, Poona College of Pharmacy; Principal, Sinhgad College of Pharmacy, Pune, India

A number of chemical compounds are now being used as drugs. This makes it essential for a student of pharmacy to have sound knowledge of physico-chemical principles. *This book brings together the relevant basic concepts of physical chemistry and pharmaceutical sciences*. A general account of the gaseous and crystalline states of matter is followed by a detailed treatment of the liquid state including solutions, ionic equilibria, collodial dispersions, emulsions and gels which form the core of pharmaceutical sciences. Relevant kinetic thermodynamic theories with examples are also included.

Contents: The Gaseous State ◆ The Solid State ◆ Properties of Solutions-1 ◆ Properties of Solutions-II ◆ The Phase Rule ◆ Electrolyte Solutions ◆ Thermodynamics-1 ◆ The Second Law or Thermodynamics ◆ Electrochemistry ◆ Ionic Equilibria ◆ Chemical Kinetics and Biopharmaceutics Interfacial Phenomena ◆ Collids and Macromolecular Systems ◆ Suspensions, Emulsions and Coarse Dispersions ◆ Micromeritics ◆ Rheology ◆ *Appendix* ◆ *Bibliography* ◆ *Index*

1991	384 pp.	Paperback
978-0-86311-084-9		₹ 375.00

Experimental Pharmacology

M C Prabhakar
Formerly Senior Professor and Head, Department of Pharmacology, Sri Vishnu College of Pharmacy, Bhimavaram, India

This book is a unique compendium of experiments on drug response patterns. Students can easily understand the essential theoretical principles of the behaviour of drug agents by analyzing the results. Keeping Indian conditions in mind, locally available material has been used. In this revised second edition, a new experimental animal, the chick has been added.

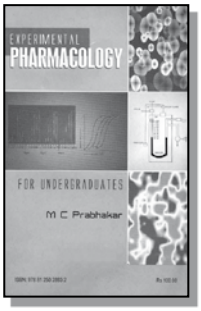
Contents: Effect of Different Agonists on Blood Pressure Preparation ◆ New and Modified Techniques

◆ Thrills, Paradoxes and Chills ◆ Experiments on Rabbit ◆ Experiments on Chick ◆ Experiments on Cat ◆ Experiments on Guinea Pig ◆ Experiments on Dog ◆ Some Psychopharmacology Techniques ◆ Points to Remember ◆ Some Autonomic Drug Interactions in: I. Anesthetised Rat (Sets 1–18): II. Anesthetised Dog (Sets 19–33)

2013 | 248 pp. | Paperback
978-81-7371-820-5 | ₹ 395.00

Experimental Pharmacology for Undergraduates

M C Prabhakar
Formerly Senior Professor and Head, Department of Pharmacology, Sri Vishnu College of Pharmacy, Bhimavaram, India



The book is a compilation of all the concepts necessary for undergraduate students of pharmacology (in pharmacy and veterinary sciences colleges). This is the first book; the second book is for postgraduates. The book for undergraduates covers the basics of pharmacology and the one for postgraduates takes up specialised topics and experiments. Both books emphasise understanding of the subject and give explanations of phenomena where necessary. The books also give the student practical tips that would be useful in the laboratory setting.

Contents: General Concepts ◆ Dose – Response Curve ◆ Agonists and Antagonists ◆ Introduction to the Autonomic Nervous System (ANS) ◆ Experiments on Frog ◆ Experiments on Rat ◆ Bioassays ◆ Identification of an Unknown Compound ◆ Guide to Drug Doses in Laboratory Animals ◆ *Bibliography*

2007 | 96 pp. | Paperback
978-81-7371-659-1 | ₹ 175.00

Herbal Drug Technology
(Second Edition)

S S Agrawal
Formerly Professor and Head, Department of Pharmacology; Principal, Delhi Institute of Pharmaceutical Sciences and Research, New Delhi, India

M Paridhavi
Principal, Rajiv Gandhi Institute of Pharmacy, Kasargod, India

The second edition of the textbook *Herbal Drug Technology*, based on the curriculum of various universities, caters to both bachelor's and master's courses in pharmacy and allied sciences. It contains detailed information on Indian systems of medicine, herbal therapeutics, crude drugs and medicinal botany. New to this edition are topics such as herbal cosmetics, nutraceuticals, chemotaxonomy, recent changes in in vivo anticancer screening models and screening of cardiac glycosides, and methods of literature search and patenting of herbal drugs.

Special Features: *Designed according to the curriculum of undergraduate and postgraduate courses in pharmacy of various universities in India and abroad* ◆ Incorporates recent advances in technology ◆ Provides a comparative study of dosage forms in ayurveda and modern medicine ◆ Includes a detailed analysis of more than 60 phytopharmaceuticals ◆ Discusses standardization of herbal drugs—WHO protocol, different methods used for standardization, quality control standards for herbal extracts and validation of herbal products

Contents: *Second Message* ◆ *First Message* ◆ *Foreword* ◆ *Preface to the Second Edition* ◆ *Preface to the First Edition* ◆ Introduction to Medicinal Plants ◆ Indian Systems of Medicine ◆ Herbal Therapeutics: From Ancient Times to the 21st Century ◆ Essentials of Crude Drugs ◆ Medicinal Botany ◆ In vitro Culture of Medicinal Plants: Tissue Culture ◆ Systematic Examination of Powdered Drugs ◆ Screening Methods Used for Herbal Drugs ◆ Standardisation of Herbal Drugs ◆ Herbal Formulations: A Comparative Study of Ayurvedic and Modern Dosage Forms ◆ Herbal Cosmetics ◆ Nutraceuticals: A Modern Approach ◆ Chemotaxonomy ◆ The Role of Literature Search in Medicinal Plant Research ◆ Patenting of Herbal

Drugs ◆ *List of Plates* ◆ *Plate 1a Callus culture* ◆ *Plate 1b Plantlets formed from callus culture* ◆ *Plate 2 Shoot elongation and rooting of in vitro regenerated shoots* ◆ *Plate 3 Plantlets acclimatised to greenhouse conditions* ◆ *Plate 4 Immobilised beads*

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2012	836 pp.	Paperback
978-81-7371-787-1		₹ 895.00

Indian Medicinal Plants: A Compendium of 500 Species

P K Warrier
Managing Trustee, Arya Vaidyasala, Kottakal, India

V P K Nambiar
Formerly Systematic Botanist, Kerala Forest Research Institute, Peechi, India

C Ramankutty
Arya Vaidyasala, Kottakal, India

This compendium which is based on a treatise prepared by S Raghunatha Iyer, a scholar of both Sanskrit and Ayurveda, aims to make an authoritative contribution to the field. The original work which drew upon classical texts and current research, as well as the oral medical knowledge of tribal groups has been updated by scholars associated with the Arya Vaidya Sala in Kottakal, India. This unique compendium offers profiles of 500 key species with detailed taxonomic information. One of the leading features of this compilation is the special technique used in the illustrations, both colour and line, which aims to achieve authenticity of texture, colour and form.

The compendium also lists the distribution and popular nomenclature in English, Sanskrit, Hindi, Malayalam and Tamil. The main texts present properties and uses in a format which cites ancient verse texts and ethnobotanical sources. This rare work, in five volumes, should be of special interest to practitioners of alternative medicine, students of Ayurveda, the research and industry associated with medical botany, pharmacologists, sociologists and medical herbalists.

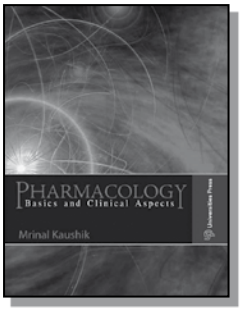
Contents: Abelmoschur esculentus ◆ Abelmoschus moschatus ◆ Abies spectabilis ◆ Abrus precatorius ◆ Acacia caesia ◆ Acacia catechu ◆ Acacia leucophloea ◆ Acacia nilotica ◆ Acacia polyantha ◆ Acacia sinuate ◆ Acalypha indica ◆ Achyranthes aspera ◆ Aconitum heterophyllum ◆ Aconitum napellus ◆ Acorus calamus ◆ Actiniopteris dichotoma ◆ Adenanthera pavonina ◆ Aegle marmelos ◆ Aerva lanata ◆ Agaricus campestris ◆ Ageratum conyzoides ◆ Alangium salvifolium ◆ Albizia lebbeck ◆ Albizia odoratissima ◆ Allium cepa ◆ Allium sativum ◆ Allophylus serratus ◆ Aloe barbadensis ◆ Alpina galangal ◆ Alstonia scholaris ◆ Alstonia venenata ◆ Alternanthera sessilis ◆ Amaranthus spinosus ◆ Ammania baccifera ssp. baccifera ◆ Amomum subulatum ◆ Amorphophallus paeoniifolius ar.companulatus ◆ Anacardium occidentale ◆ Anacyclus pyrethrum ◆ Anamirta cocculus ◆ Ananas comosus ◆ Andrographis paniculata ◆ Anethum graveolens ◆ Anisomeles malabarica ◆ Annona squamosa ◆ Anogeissus latifolia ◆ Aphanamixis polystachya ◆ Aquilaria agollocha ◆ Arachis hypogaea ◆ Arecca catechu ◆ Argemone mexicana ◆ Argyreia nervosa ◆ Aristolochia bracteolate ◆ Aristolochia indica ◆ Artemisia nilagirica ◆ Artocarpus communis ◆ Artocarpus heterophyllus ◆ Artocarpus hirsutus ◆ Asparagus racemosus ◆ Averrhoa carambola ◆ Azadirachta indica ◆ Bacopa monnieri ◆ Baliospermum montanum ◆ Bambusa arundinacea ◆ Barringtonia acutangula ◆ Basella alba var.rubra ◆ Bauhinia variegate ◆ Benincasa hispida ◆ Beta vulgaris ◆ Betula utilis ◆ Biophytum sensitivum ◆ Bixa orellana ◆ Blumea lacera ◆ Boerhaavia diffusa ◆ Bombax ceiba ◆ Borassus flabellifer ◆ Boswellia serrata ◆ Brassica juncea ◆ Brassica oleracea var. capitata ◆ Buchanania lanzan ◆ Butea monosperma ◆ Caesalpinia bonduc ◆ Caesalpinia sappan ◆ Cajanus cajan ◆ Calamus rotang ◆ Callicarpa macrophylla ◆ Calophyllum inophyllum ◆ Calotropis gigantean ◆ Calycopteris floribunda ◆ Camellia sinensis ◆ Canavalia gladiata ◆ Cannabis sativa ◆ Canscora decussate ◆ Canthium parviflorum ◆ Capparis deciduas ◆ Capsicum annuum ◆ Cardiospermum halicacabum ◆ Careya arborea ◆ Carica papaya ◆ Carissa carandas ◆ Carthamus tinctorus ◆ *Appendix A* ◆ *Appendix B* ◆ *Index to Sanskrit Terms*

Volume 1	1993	430 pp.	Hardback
978-81-7371-702-4			₹ 1,325.00
Volume 2	1994	436 pp.	Hardback
978-81-7371-703-1			₹ 1,325.00

Volume 3	1994	423 pp.	Hardback
978-81-7371-704-8			₹ 1,325.00
Volume 4	1995	444 pp.	Hardback
978-81-7371-705-5			₹ 1,325.00
Volume 5	1996	592 pp.	Hardback
978-81-7371-706-2			₹ 1,325.00

Pharmacology: Basics and Clinical Aspects

Mrinal Kaushik
Senior Medical Officer (SMO), Central Health Service (CHS), Ministry of Health & Family Welfare, Government of India, posted at Dr Ram Manohar Lohia Hospital (Dr RMLH), New Delhi, India



This book presents the fascinating but complex subject of Pharmacology in a concise and clinically relevant manner. It discusses Pharmacology from a perspective that can be readily identified by students in the context of actual clinical situations. Unlike most books, which tend to test the student's memory skills, the emphasis here is on a logic-based understanding of pharmacology. This would enable students to easily comprehend and, more importantly, to retain the information presented.

In this book, the different types of drugs, their mechanisms of action, rationale for drug interactions and side effects have been discussed in detail. In keeping with the highly dynamic nature of the subject and the vast clinical research underway, the latest and most widely accepted views are provided at every juncture.

Contents: *Section 1:* General Pharmacology—Routes of Drug Administration ◆ Drug Absorption and Distribution ◆ Drug Metabolism and Excretion ◆ Pharmacodynamics ◆ *Section 2:* Drugs Acting on the Cardiovascular System—Antihypertensive Drugs ◆ Antiarrhythmic Drugs; *Section 3:* Drugs Acting on the Central Nervous System—Anaesthesia and Anaesthetic Agents ◆ Antiepilepsy Drugs ◆ Drug Therapy of Alzheimer's Disease ◆ Drug Therapy of Parkinson's Disease ◆ Antidepressant Drugs ◆ Neuroleptics ◆ Drug Therapy of Migraine ◆ *Section 4:* Drugs Acting on the Renal System—Diuretic Agents ◆ *Section 5:* Antimicrobial Drugs—Antibacterial drugs ◆ Antifungal Drugs ◆ Antitubercular Drugs ◆ Antimalarial Drugs ◆ Antiretroviral Drugs ◆ Anti viral Drugs ◆ Anthelmintic Drugs ◆ *Section 6:* Drugs Acting on the Gastrointestinal System—Drug Therapy of Acid Peptic Disorders ◆ Antiemetic Drugs ◆ Drug-induced Hepatotoxicity ◆ *Section 7:* Drugs Acting on the Respiratory System—Drug Therapy of Bronchial Asthma ◆ *Section 8:* Anticancer Drugs—Cancer Chemotherapy Drugs ◆ *Section 9:* Drugs Acting on the Metabolic and Endocrine Systems—Antidiabetic Drugs ◆ Antiobesity Drugs ◆ Drug Therapy of Hyperlipoproteinemias ◆ *Section 10:* Neurotransmitters and Drugs Effective in Neurotransmission Defects—Noradrenergic and Adrenergic system ◆ Dopaminergic System ◆ Serotonergic System ◆ Cholinergic System ◆ *Section 11:* Inflammation and Anti-inflammatory Drugs—Prostaglandins ◆ Corticosteroids ◆ Non-steroidal Anti-inflammatory Drugs (NSAIDs) ◆ *Section 12:* Effect of Concomitant Use of Multiple Drugs—Drug Interactions ◆ *Answer key* ◆ *Index*

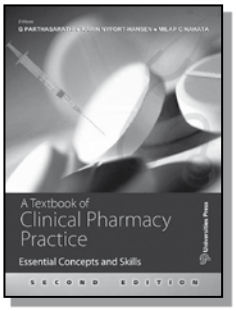
2011	752 pp.	Paperback
978-81-7371-694-2		₹ 850.00

Textbook of Clinical Pharmacy Practice
(Second Edition)

G Parthasarathi (Ed.)
Dean, Faculty of Pharmacy; Professor, Pharmacy Practice, J S S University, Mysore, India

Karin Nyfort-Hansen (Ed.)
Research Pharmacist and Clinical Trial Co-ordinator, School of Medicine, The University of Adelaide, Australia

Milap C Nahata (Ed.)
Professor and Chair of Pharmacy Practice and Administration, College of Pharmacy, The Ohio State University, Columbus, USA



This book aims to equip pharmacists with the knowledge and skills required to discharge their clinical pharmacy practice responsibilities in the Indian scenario. The focus is on providing information about how clinical pharmacy is practiced rather than what they need to know about drugs and therapeutics.

Completely revised and updated, this edition includes four new chapters: *Community Pharmacy Practice, Medication Use in Pregnancy and Lactation, Ethical Issues in Clinical Research and Poison Information.* These chapters address practice areas of great relevance to Indian pharmacists and result in a more comprehensive text overall.

A balanced mix of content, case studies, references and website links has been provided to make the topics as clear and interesting to the reader as possible. Additional appendices comprise laboratory reference values for adults and how to take medication history.

Salient Features: New and revised chapters ◆ Additional tables, sample forms and appendices ◆ Learning objectives and key messages for every chapter ◆ New case studies, practice scenarios and exercises ◆ Updated glossary

Contents: *Foreword to the Second Edition* ◆ *Foreword to the First Edition* ◆ *Preface to the Second Edition* ◆ *Abbreviations* ◆ Clinical Pharmacy in India ◆ Clinical Pharmacy: An International Perspective ◆ Community Pharmacy Practice ◆ Key Competencies for Clinical Pharmacy Practice ◆ Communication Skills for Pharmacists ◆ Patient Counselling ◆ Medication Adherence ◆ Essential Medicines and Rational Drug Use ◆ Adverse Drug Reactions and Pharmacovigilance ◆ Drug Interactions ◆ Interpreting Laboratory Data: Biochemistry and Haematology ◆ Interpreting Laboratory Data: Infectious Diseases ◆ Medication Review ◆ Ward Round Participation ◆ Paediatric Pharmacy Practice ◆ Clinical Pharmacy for Geriatric Patients ◆ Medication Use in Pregnancy and Lactation ◆ Critical Appraisal: How to Read a Research Paper ◆ Drug Information ◆ Poison Information ◆ Clinical Pharmacokinetics ◆ Therapeutic Drug Monitoring ◆ Continuing Professional Development ◆ Ethical Issues in Clinical Research ◆ Research in Clinical Pharmacy ◆ Drug Utilisation Evaluation ◆ Pharmacoepidemiology ◆ Medication Errors and Adverse Drug Events ◆ Pharmacoeconomics: Theory, Research and Practice ◆ Development of Therapeutic Guidelines ◆ *Appendices* ◆ *Glossary* ◆ *Index*

Available in print and e-book formats.
For details, visit www.universitiespress.com

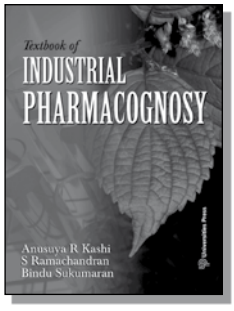
2012	596 pp.	Paperback
978-81-7371-756-7		₹ 595.00

Textbook of Industrial Pharmacognosy

Anusuya R Kashi
Department of Pharmacognosy, Vivekananda College of Pharmacy, Bengaluru, India

S Ramachandran
Department of Pharmaceutical Chemistry, Mohamed Sathak AJ College of Pharmacy, Chennai, India

Bindu Sukumaran
Department of Pharmacognosy, Vivekananda College of Pharmacy, Bengaluru, India



This book is *designed for undergraduate pharmacy students* and provides both contemporary and comprehensive information on herbal drugs. The first three chapters—herbal drug industry, patents and intellectual property rights, and standardization of herbal drugs—are new, and have been culled from diverse sources. The book provides current information, and is organised in a format that enables students to focus on the important aspects.

Contents: Herbal drug industry ◆ Patents ◆ Standardization of herbal drugs ◆ Traditional systems of medicine ◆ Ayurvedic formulations ◆ Traditional drugs ◆ Isolation of compounds from natural sources ◆ Herbal cosmetics ◆ Enzymes ◆ Nutraceuticals ◆ Polyploidy ◆ Plant biotechnology ◆ Protoplast technology ◆ Enzyme biotechnology

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2012 | 244 pp. | Paperback
978-81-7371-754-3 | ₹ 425.00

Textbook of Industrial Pharmacy: Drug Delivery Systems, and Cosmetic and Herbal Drug Technology

Shobha Rani R Hiremath
Professor and Head, Department of Pharmacy and Practice, Al-Ameen College of Pharmacy, Bengaluru, India

Textbook of Industrial Pharmacy is a pioneering effort that aims to bring together the three main specialties of pharmaceutical technology—drug delivery systems and industrial pharmacy, cosmetic technology and herbal drugs—in one book. With separate sections on these branches, this book provides detailed information about current techniques, as well as the concepts and principles on which they are based.

Targeted at final year B Pharm and first year M Pharm students, this book includes many step-by-step procedures, illustrations, and examples relating to drug delivery systems, optimisation and validation of pharmaceuticals, herbal drugs and products, cosmetics and cosmeceuticals. In addition, key points and self-assessment questions have been included at the end of every chapter.

Special Features: Systematic and thorough coverage of syllabus topics d Step-by-step procedures d Illustrations that enhance understanding of text d Six full-colour plates d Numerous examples to improve comprehension d Key points and self-assessment questions

Contents: *Section I:* Drug Delivery and Industrial Pharmacy ◆ Introduction to Novel Drug Delivery Systems ◆ Controlled Drug Delivery Systems ◆ Transdermal Drug Delivery Systems ◆ Ocular Drug Delivery Systems ◆ Nasal Drug Delivery Systems ◆ Buccal Drug Delivery Systems ◆ Implant Drug Delivery Systems ◆ Targeted Drug Delivery Systems ◆ Liposomes ◆ Niosomes ◆ Microspheres ◆ Nanoparticles ◆ Methods of Enhancing Bioavailability of Drugs ◆ Pilot Plant and Scale-up ◆ Optimisation Techniques in Pharmaceutical Formulation and Processing ◆ Process Validation ◆ Pollution Control and Effluent treatment in Pharmaceutical Industries ◆ *Section II:* Cosmetic Technology ◆ Raw Materials Used in Cosmetics ◆ Cosmeceuticals ◆ Formulation of Cosemetics ◆ Herbal Cosmetics ◆ Quality control of Cosmetics ◆ Safety and Efficacy of Cosmetics ◆ Stability Testing ◆ Regulatory Aspects of Cosmetics ◆ *Section III*: Herbal Drug Technology ◆ Natural Products and Drug Discovery – A Perspective ◆ Introduction to Isolation, Identification and Estimation of lead Compounds from Natural Products ◆ Quality Control and Standardisation of Herbal Drugs – An Overview

2008 | 464 pp. | Paperback
978-81-7371-639-3 | ₹ 550.00

Textbook of Organic Chemistry

C N Pillai
Formerly Professor, Department of Chemistry, Indian Institute of Technology Madras, Chennai, India

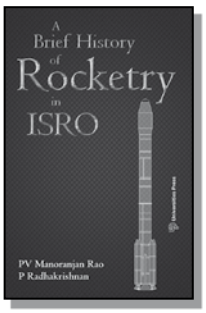
See page 20

Physics

A Brief History of Rocketry in ISRO (PB)

PV Manoranjan Rao
Group Director (Retd), Programme Planning and Evaluation Group,VSSC, ISRO

P Radhakrishnan
Deputy Director (Systems Reliability & Quality Assurance) (Retd), Liquid Propulsion Systems Centre, Thiruvananthapuram



This book attempts to showcase India's capabilities in rocketry developed over the past 45 years (1963–2003). Starting from scratch, the Indian Space Research Organization (ISRO) painstakingly mastered this technology in a remarkably short time. The book explains the complex technological developments in the field for the lay person. It also records historical events and provides biographical sketches of legendry personalities like Bhabha, Sarabhai, Dhawan and Brahm Prakash highlighting their contributions to building modern India.

Salient Features:

- Transcripts of interviews with key personnel
- Evocative photographs that chart the progress of the rocketry programme
- Extracts from biographical articles
- Comprehensive name and subject indexes

Contents: *Foreword* ◆ *Preface* ◆ *Acknowledgements* ◆ *Introduction* ◆ The Background ◆ The Small Bang ◆ Sounding Rockets ◆ The Debut: SLV-3 ◆ The Technological Bridge: Augmented Satellite Launch Vehicle ◆ The Workhorse: Polar Satellite Launch Vehicle ◆ The Missing Link: Geosynchronous Satellite Launch Vehicle ◆ Profiles in Technology Development: Chemicals and Materials ◆ Profiles in Technology Development: Avionics and Aeronautics ◆ The Quartet ◆ *Epilogue:* Glimpses of the Future ◆ *Annexure I*: SDSC-SHAR: The Spaceport of India ◆ *Annexure II*: Atomic Energy and Space Research: A Profile for the Decade 1970–80 ◆ *Glossary* ◆ *Index*: Name ◆ *Index*: Subject

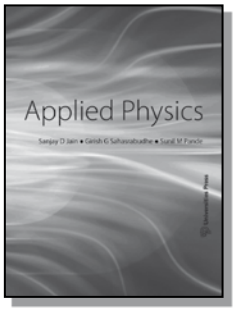
2012	416 pp.	Paperback
978-81-7371-764-2		₹ 825.00

Applied Physics

Sanjay D Jain
Head, Physics Knowledge Center, Priyadarshini Institute of Engineering and Technology, Nagpur, India

Girish G Sahasrabudhe
Department of Physics, Shri Ramdeobaba College of Engineering and Management, Nagpur, India

Sunil M Pande
Professor of Physics, Shri Ramdeobaba College of Engineering and Management, Nagpur, India



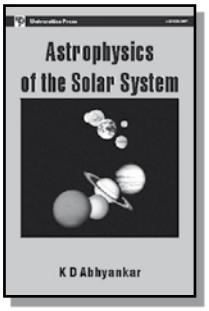
- *Caters to the needs of first- and second-semester undergraduate engineering students and is fully syllabus-compliant*
- Rekindles the interest of engineering students in physics by bringing to the fore the close links between physics and engineering.
- Uses charts to facilitate a quick understanding of how different topics are related, thereby providing a comprehensive and holistic picture of the subject.
- Use of boxes and highlighted texts to draw readers' attention to important derivations, formulas and special topics that look beyond the syllabus.
- A wide selection of *numerical problems, many drawn from earlier examination papers, for providing adequate problem-solving practice.*

Contents: What is Light? ◆ Interference ◆ Polarisation ◆ Quantum Physics ◆ Semiconductor Physics ◆ Diodes and Transistors ◆ Crystal Structure ◆ Charged Particles in Electric and Magnetic Fields ◆ Lasers ◆ Fibre Optics ◆ Introduction to Nanotechnology

2013	360 pp.	Paperback
978-81-7371-773-4		₹ 350.00

Astrophysics of the Solar System

K D Abhyankar

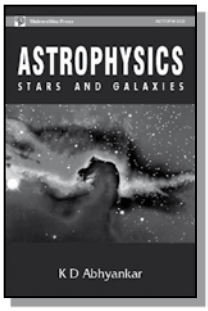


This book attempts to broadly deal with the mechanics and dynamics of the Solar System with additional emphasis on celestial mechanics. Important planetary laws and theories like the Geocentric Theory, Kepler's Laws, Newton's law of gravitation, the catastrophic theories of Moulten, Russel and Schmidt, and the nebular hypothesis of Kant and Laplace are clearly explained. The book also deals with space dynamics and rocket propulsion, solar activities, lunar studies, small bodies and extraterrestrial life.

1999	272 pp.	Paperback
978-81-7371-124-4		₹ 575.00

Astrophysics: Stars and Galaxies

K D Abhyankar

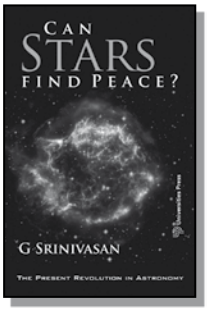


This book introduces the subject of astrophysics to honours and post-graduate students of physics, without the necessity of their being familiar with all the practical details of modern astronomical techniques of observation and deduction of data. The emphasis is on showing how an application of the commonly known laws of physics gives us important information about the properties of celestial objects and phenomena.

2001	576 pp.	Paperback
978-81-7371-381-1		₹ 795.00

Can Stars Find Peace?

G Srinivasan
Raman Research Institute, Bangalore



What will happen to a star when its supply of nuclear energy is exhausted? Will it collapse to a point and disappear from this Universe? Or, is there a new twist to the story?

In this book, the second volume of the series '**The Present Revolution in Astronomy**' authored by G Srinivasan, the story of the life history of the stars is narrated in a lucid manner, with the necessary physics background developed in a systematic fashion. The first part deals with the great developments of the 1930s. This includes the great discovery by Chandrasekhar and the subsequent prediction of supernovae, neutron stars and black holes. The second part of the book is devoted to a discussion of the modern perspective of stellar evolution.

I know of no other book on the evolution of stars of a similar scope and breadth that is so accessible for undergraduate students.

E P J van den Heuvel
Professor of Astrophysics
University of Amsterdam, The Netherland

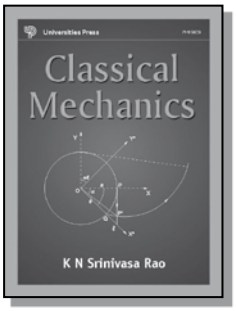
Contents: *Foreword* ◆ *Preface* ◆ **Part 1: A Historical Perspective** ◆ What Are the Stars? ◆ Stars in Their Youth ◆ White Dwarf Stars ◆ The Principles of Statistical Mechanics ◆ Fermi–Dirac Distribution ◆ Quantum Stars ◆ The Chandrasekhar Limit ◆ The Absurd Behaviour of Stars: Not All Stars Will Have Energy to Cool ◆ Guest Stars ◆ Supernovae, Neutron Stars and Black Holes ◆ *A Profile of Chandra* ◆ **Part II: The Life History of Stars—A Modern Perspective** ◆ To Burn or Not To Burn ◆ What Does the Future Hold for the Sun? ◆ Life History of Intermediate Mass Stars ◆ Diamonds

in the Sky ◆ Exploding Stars ◆ *Epilogue* ◆ *Suggested Reading* ◆ *Index*

2011	268 pp.	Paperback
978-81-7371-742-0		₹ 425.00

Classical Mechanics

K N Srinivasa Rao



An attempt is made in this book to present a logical development of mechanics starting from its basic principles and it may be regarded as a companion volume to the standard texts by well-known authors. While the material on rigid bodies and analytical mechanics can be taught at the post graduate level, selected topics from the earlier chapters serve as instructional material even at lower levels. Another feature of the book is the unusually large number of worked examples to enable the student to gain a deeper insight into the basic principles of mechanics.

Contents: *Acknowledgement* ◆ *Preface* ◆ Kinematics of a Material Point ◆ Change of Frame of Reference ◆ Dynamics of a Material Point (Inertial Frame) ◆ Dynamics of Relative Motion (Non-Intertial Frame) ◆ Rigid Bodies - Mathematical Preliminaries ◆ Rigid bodies - Kinematics ◆ Rigid Bodies-Dynamics ◆ Elements of Analytical Mechanics ◆ Small Oscillations of Mechanical Systems ◆ *Bibliography* ◆ *Index*

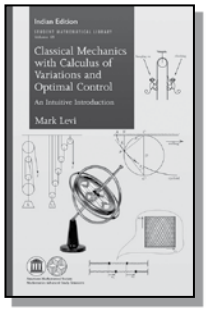
2003	360 pp.	Paperback
978-81-7371-436-8		₹ 545.00

Classical Mechanics with Calculus of Variations and Optimal Control: An Intuitive Introduction

NEW AMS

Mark Levi

Professor of Mathematics at Pennsylvania State University, University Park, USA



This is an intuitively motivated presentation of many topics in classical mechanics and related areas of control theory and calculus of variations. All topics throughout the book are treated with tolerance for unraveling definitions and for proofs which leave the reader in the dark. Some areas of particular interest are an extremely short derivation of the ellipticity of planetary orbits; a statement and an explanation of the 'tennis racket paradox'; a heuristic explanation (and a rigorous treatment) of the gyroscopic effect; a revealing equivalence between the dynamics of a particle and statics of a spring; a short geometrical explanation of Pontryagin's maximum principle, and more. In the last chapter, aimed at more advanced readers, the Hamiltonian and momentum are compared to forces in a certain static problem. This gives a palpable physical meaning to some seemingly abstract concepts and theorems. With minimal prerequisites consisting of basic calculus and basic undergraduate physics, this book is suitable for courses from an undergraduate to a beginning graduate level, and for a mixed audience of mathematics, physics and engineering students. Much of the enjoyment of the subject lies in solving almost 200 problems in this book.

Contents: *Series Foreword: MASS and REU at Penn State University* ◆ *Preface* ◆ One Degree of Freedom ◆ More Degrees of Freedom ◆ Rigid Body Motion ◆ Variational Principles of Mechanics ◆ Chapter 5. Classical Problems of Calculus of Variations ◆ The Conditions of Legendre and Jacobi for a Minimum ◆ Optimal Control ◆ Heuristic Foundations of Hamiltonian Mechanics ◆ *Bibliography* ◆ *Index*

2016	300 pp.	Paperback
978-1-4704-2598-2		₹ 960.00

Elements of Cosmology

Jayant V Narlikar

This book is based on lectures given by the author at a number of universities with the aim of introducing Cosmology to students and teachers at the graduate level. Here cosmology is explained within the framework of Newtonian gravity and mechanics thereby making it readily understood to students of Physics and Mathematics at the undergraduate level. The description is up-to-date and includes cosmological models, their physical properties and observational tests.

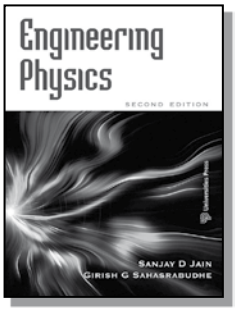
Contents: *Foreword* ◆ *Preface* ◆ THE LARGE STRUCTURE OF THE UNIVERSE ◆ Introduction; Structural hierarchy ◆ Hubble's law ◆ Radiation backgrounds; Exercises ◆ Newtonian Cosmology ◆ THEORETICAL MODELS ◆ Introduction; Simplifying postulates ◆ Redshift ◆ Luminosity distance ◆ Cosmological models ◆ The cosmological constant ◆ Space-time singularity ◆ The steady state model ◆ Exercises ◆ HISTORY OF THE UNIVERSE - Matter vs radiation-dominated universe; The hot universe ◆ The very early universe ◆ The early universe; Conclusion ◆ Exercises ◆ OBSERVATIONAL TESTS OF COSMOLOGICAL MODELS ◆ Introduction; Tests of cosmological models based on observations of the distant parts of the universe ◆ Observations from the nearby universe ◆ Exercises ◆ PRESENT CHALLENGES IN COSMOLOGY ◆ Structure formation ◆ Observational cosmology ◆ Alternative cosmologies ◆ *Appendix*: Mathematical, Physical and astronomical constants ◆ *Suggested further reading* ◆ *Index*

1996	104 pp.	Paperback
978-81-7371-043-8		₹ 195.00

Engineering Physics (2nd Edition) NEW

Sanjay D Jain
Head, Knowledge Center of Priyadarshini Institute of Engineering and Technology, Nagpur.

Girish G Sahasrabudhe
Professor of Physics, Shri Ramdeobaba Kamla Nehru Engineering College, Nagpur



Engineering Physics has been conceived to develop a coherent, comprehensive and practical view of physics among engineering students. This will help them to develop fundamental ways of thinking and inventing in their future engineering practice. The book attempts to break the monotony of just stating theoretical concepts by examining the historical development of the subject, to show interesting links between the various topics. Theory and experiment are integrated and learning through scientific method is emphasized by seeking agreement between theory and experiment. Numerical problems are included at appropriate places to offer quantitative appreciation of parameters involved. Charts are used to facilitate comparative learning of topics that share the same unifying and founding aspects. Applications of each topic are discussed at the end of the chapter to give an idea of how engineering grows through the utilitarian translation of discoveries and concepts in physics. A new chapter on nanophysics has been included, with additional exercises in key chapters.

Contents: Physics and Engineering ◆ The Story of Physics and Engineering ◆ Learning Physics ◆ Theory ◆ Experiment ◆ Seeking Agreement between Theory and Experiment ◆ Applications ◆ What is Light? ◆ The Story of Light ◆ Geometrical and Physical Optics ◆ Wave Equation and Wave Parameters ◆ Light as an ElectromagneticWave ◆ Applications ◆ Interference ◆ The Story of Interference of LightWaves ◆ Superposition of Waves ◆ Coherence ◆ Interference ◆ Applications ◆ Diffraction ◆ The Story of Diffraction ◆ The Phenomenon of Diffraction ◆ Diffraction at Slits ◆ Applications ◆ Polarisation ◆ The Story of Polarisation ◆ Types of Polarisation ◆ Why Natural Light is Unpolarised ◆ Production of Plane Polarised

Light ◆ Huygen'sModel of Double Refraction and Production of Elliptically and Circularly Polarised Light ◆ Analysis of Polarised Light ◆ Applications ◆ Quantum Physics ◆ The Story of Quantum Physics ◆ Planck's Quantum Theory ◆ Photoelectric Effect ◆ Compton Effect ◆ Comparison of Photoelectric Effect and Compton Effect ◆ Wave–Particle Duality of Radiation and Concept of Matter Waves ◆ Heisenberg's Uncertainty Principle ◆ Wave Function ◆ Schrodinger's Equation ◆ Applications ◆ Atomic Physics ◆ The Story of Atomic Physics ◆ Atomic Spectra ◆ Bohr's Theory ◆ Application of Quantum Mechanics to Hydrogen Atom ◆ Quantum Numbers and the Periodic Table ◆ Xray Spectra ◆ Applications ◆ Nuclear Physics ◆ The Story of Nuclear Physics ◆ Atomic Nucleus ◆ Radioactivity ◆ Nuclear Models and Spectroscopy ◆ Applications ◆ Structure and Properties of Matter ◆ The Story of Matter ◆ Bonding ◆ Bonding in Solids ◆ Crystal Structure ◆ Miller Indices ◆ Determination of Crystal Structure by Xray Diffraction ◆ Materials and their Properties ◆ Applications ◆ Dielectric and Magnetic Materials ◆ The Story of Dielectric and Magnetic Materials ◆ Electromagnetism in Materials ◆ Microscopic Models of Polarisation and Magnetisation ◆ Internal Field ◆ Ferroelectricity, Ferromagnetism and Related Phenomena ◆ Classification of Materials ◆ Applications ◆ Conductors, Semiconductors and Superconductors ◆ The Story of Conductors ◆ Free Electron Theory of Metals ◆ Formation of Energy Bands in Solids ◆ Fermi Energy and Fermi Level ◆ Semiconductors: Intrinsic and Extrinsic ◆ Superconductivity ◆ Applications ◆ Diodes and Transistors ◆ The Story of Diodes and Transistors ◆ p–n Junction Diode ◆ Transistor ◆ Applications ◆ Charged Particles in Electric and Magnetic Fields ◆ The Story of Charged Particles in Motion ◆ Motion Under a Force ◆ Motion of Charged Particles in Electric and Magnetic Fields ◆ Motion of Charged Particles in Combined Electric and Magnetic Fields ◆ Electron Optics ◆ Applications ◆ Lasers ◆ The Story of Lasers ◆ Introduction ◆ Different Types of Lasers ◆ Characteristics of Laser Light ◆ Semiconductor Photonic Devices ◆ Applications ◆ Fibre Optics ◆ The Story of Fibre Optics ◆ Total Internal Reflection ◆ Structure of an Optical Fibre ◆ Propagation of Light ◆ Wave Optics: Modes ◆ Attenuation ◆ Signal Distortion ◆ Fibre Optic Communication Systems ◆ Applications ◆ Acoustics ◆ The Story of Acoustics ◆ Fundamentals of Vibrations ◆ SoundWaves and their Characteristics ◆ Mechanisms of Speech and Hearing ◆ Classical Ray Theory ◆ Ultrasonics ◆ Applications ◆ Introduction to Nanotechnology ◆ Introduction ◆ Preparation of Nanomaterials ◆ Characterisation and Measurement ◆ Fullerenes, Graphene and Cargon Nanotubes ◆ Properties and Applications ◆ *Index*

2016	648 pp.	Paperback
978-81-7371-991-2		₹ 600.00

Foundations of Mechanics
(Second Edition)

Ralph Abraham
Department of Mathematics, University of California, Santa Cruz, USA

Jerrold E Marsden
Applied Mathematician and Carl F. Braun Professor of Engineering and Control and Dynamical Systems, California Institute of Technology, Pasadena, USA

For many years, this book has been viewed as a classic treatment of geometric mechanics. It is known for its broad exposition of the subject, with many features that cannot be found elsewhere. *The book is recommended as a textbook and as a basic reference work for the foundations of differentiable and Hamiltonian dynamics.*

Contents: *Part 1:* Preliminaries—Differential Theory ◆ Calculus on Manifolds

Part 2: Analytical Dynamics—Hamiltonian and Lagrangian Systems ◆ Hamiltonian Systems with Symmetry ◆ Hamiltonian-Jacobi Theory and Mathematical Physics

Part 3: An outline of Qualitative Dynamics—Topological Dynamics ◆ Differentiable Dynamics ◆ Hamiltonian Dynamics

Part 4: Celestial Mechanics—The Two-Body Problem ◆ The Three-Body Problem ◆ *Appendix* ◆ *Bibliography* ◆ *Index* ◆ *Glossary of Symbols* ◆ *Errata*

2011	852 pp.	Paperback
978-0-8218-6875-1		₹ 2,005.00

How and Why in Basic Mechanics

Arvind Kumar & Shrish Barve

Among the formal physics textbooks, problem manuals and general expository books lies the domain of non-formal physics—the world of content-specific strategies and styles of reasoning that practising physicists employ but do not fully articulate in print. How and Why in

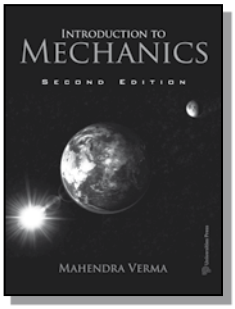
Basic Mechanics tries to capture some elements of this world through the medium of a teacher–student dialogue which runs through the many conceptual barriers that most students and teachers face in different topics of physics, and offers helpful points, clarifications and insights.

2002	296 pp.	Paperback
978-81-7371-420-7		₹ 475.00

Introduction to Mechanics (Second Edition)

NEW

Mahendra Verma
Professor, Department of Physics, Indian Institute of Technology Kanpur, India



This book offers a modern introduction to Newtonian dynamics and the basics of special relativity. The present edition covers almost all the topics specified in the mechanics syllabus of most Indian universities. It preserves the emphasis laid on the fundamental principles of mechanics and introduction of modern topics (as in the earlier edition), such as symmetries, nonlinear dynamics and presentation of Newton's laws as a differential equation.

The programming language Python is used to solve a large number of differential equations numerically and to plot them. Discussions on several topics have been expanded and many new topics have been introduced—surface tension and capillary action, Buckingham Pi theorem, impulse, magnetorotational instability (MRI), fluid flows and bending moment. The dynamics of the gyroscope have been developed very systematically and this is a unique feature of the book. Each chapter contains new illustrations, more discussions, examples and exercises.

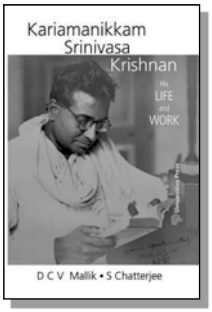
Content: *Preface to the Second Edition* ◆ *Preface to the First Edition* ◆ *Notation* ◆ History of Mechanics ◆ Newton's Laws of Motion ◆ Forces ◆ Kinematics vs Dynamics ◆ Motion on one Dimension ◆ Numerical Solution of Newton's Equations ◆ Phase Space Description of Mechanical Systems ◆ Symmetry Properties of Newton's Equation ◆ Two-dimensional Motion; Central Force Problem ◆ Three-dimensional Motion ◆ Energy ◆ Motion in a Noninertial Reference Frame ◆ Conservation of Linear Momentum and Centre of Mass ◆ Collisions ◆ Rotation Dynamics: Definitions ◆ Rigid Body Dynamics ◆ Nonlinear Dynamics And Chaos ◆ Statics ◆ Mechanics of Solids ◆ Mechanics of Fluids ◆ Special Theory of Relativity: Kinematics ◆ Relativistic Dynamics ◆ Epilogue ◆ Appendix A: Present Paradigm of Physics and Science ◆ Appendix B: Dimensional Analysis and Estimation ◆ Appendix C: Python Programming Language ◆ Appendix D: Matlab, Scilab and Octave ◆ Appendix E: Tensors and Moment of Inertia Tensor ◆ Appendix F: Vector Operations on Vector And Scalar Fields ◆ Appendix G: Important Astronomical Data ◆ Appendix H: Important Physical Constants ◆ Appendix I: Hyperbolic Functions ◆ Appendix J: Torque-free Precession Revisited ◆ *Answers to Selected Exercises* ◆ *Selected References* ◆ *Index*

2016	624 pp.	Paperback
978-81-7371-981-3		₹ 650.00

Kariamanikkam Srinivasa Krishnan: His Life and Work

D C V Mallik
Formerly Professor, Indian Institute of Astrophysics, Bengaluru, India

S Chatterjee
Professor, Indian Institute of Astrophysics, Bengaluru, India



The first four decades of the 20th century were glorious years for science, especially physics. Our view of the physical world changed forever with the emergence of quantum mechanics and

Einstein's formulation of the theory of relativity. India too contributed significantly to this scientific revolution with the discoveries made by S N Bose, C V Raman and M N Saha, all in the space of about a decade. *Kariamanikkam Srinivasa Krishnan (1898-1961)* belonged to the same illustrious group. He was perhaps the only Indian physicist of his generation who was equally adept in theory and experiment. Besides a life of excellence in science, Krishnan's destiny led him to be an able science policy maker and administrator. *He was also a great teacher, a humanist and a scholar of Sanskrit, Tamil literature and philosophy*.

This biography, besides being a detailed and meticulously documented account of Krishnan's life and his scientific work, is also an *exciting account of the history of Indian science of the period. The source material of this work, most of which are being used for the first time, comes from the private papers of K S Krishnan that had remained in the custody of his family*.

Contents: Foreword ◆ Acknowledgement ◆ Prologue ◆ Background ◆ Childhood and Schooling ◆ College Years ◆ Science Education and Its Beginnings in Calcutta ◆ Calcutta ◆ Scattering of Light ◆ Discovery of the Raman Effect ◆ Dacca ◆ Bonds of Magnetism I: The Dacca Phase ◆ Winds of Change ◆ Bonds of Magnetism II: The Calcutta Phase ◆ Graphite and Its anomalous Diamagnetism ◆ Honours and Offers ◆ The Physics Chair at Allahabad ◆ Rejuvenating Physics in Allahabad ◆ The Widening Vista ◆ Krishnan in Delhi ◆ NPL: The Initial Years ◆ Oscillating Lattices, Emitting Surfaces, Heated Tubes ◆ The Broader Stage ◆ Into the Twilight ◆ *Appendix* ◆ *Primary Sources* ◆ *Bibliography* ◆ *Index*

2011	516 pp.	Hardback
978-81-7371-748-2		₹ 1,150.00
2011	516 pp.	Paperback
978-81-7371-749-9		₹ 750.00

Mathematical Methods of Classical & Quantum Physics

Tulsi Dass & Satish K Sharma

The book is intended to provide an adequate background for various theoretical physics courses, especially those in classical mechanics, electrodynamics, quantum mechanics and statistical physics. Each topic is dealt with in a generally self-contained manner and the text is interspersed with a number of solved examples and a large number of exercise problems.

Contents: *Preface* ◆ *Acknowledgements* ◆ Vector analysis ◆ Matrices and Linear Vector Spaces ◆ Tensors ◆ Complex Variables ◆ Ordinary Differential Equations ◆ Special Functions ◆ Calculus of Variations ◆ Function Spaces, Orthogonal Expansions and Strum-Liouville Theory ◆ Integral Transforms: Generalized Functions ◆ Partial Differential Equations ◆ Green's Functions ◆ Probability and Statistics ◆ Elements of Group Theory ◆ *Appendix* ◆ *References* ◆ *Index*

1998	716 pp.	Paperback
978-81-7371-089-6		₹ 795.00

Mathematical Physics: The Basics

S D Joglekar

Professor of Physics, Indian Institute of Technology Kanpur, Kanpur, India

This book covers the basic mathematical techniques that are essential at the master's level in physics and chemistry, and provides the basic underlying preparation needed for any research student in either branch. It deals with vectors, tensors, Cartesian coordinates, Lorentz tensors, curvilinear coordinates, linear vector spaces, linear operators, matrices, complex variables and their applications at an advanced level. *In the companion volume titled, Advanced Topics, more advanced topics are dealt with to cover the entire spectrum of requirement for a course on mathematical physics at the postgraduate or research level*.

Contents: *Preface* ◆ Coordinate Transformations, Vectors and Cartesian Tensors ◆ Lorentz Transformation, 4-Vectors and 4-Tensors ◆ Curvilinear Coordinates ◆ Linear Vector Spaces – I ◆ Linear Vector Spaces – II: Linear Operators ◆ Complex Variables – I ◆ Complex Variables – II ◆ Complex Variables – III ◆ *Index*

Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group

2005	256 pp.	Paperback
978-81-7371-422-1		₹ 375.00

Mathematical Physics: Advanced Topics

S D Joglekar
Professor of Physics, Indian Institute of Technology Kanpur, Kanpur, India

This is the companion volume to *Mathematical Physics: The Basics*, which covers topics like vectors, tensors, Cartesian coordinates, Lorentz tensors, curvilinear coordinates, linear vector spaces, linear operators, matrices, complex variables and their applications. It covers more advanced topics taught in the second/third semester which include ODE, gamma and beta functions, Bessel functions, spherical harmonics and special functions, partial differential equations, generalised functions, and group theory. *Together, the two volumes cover the subject of mathematical physics for a PG course in physical sciences*.

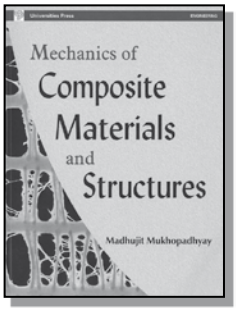
Contents: *Preface* ⋄ Ordinary Differential Equations ⋄ Gamma (Factorial) and Beta Functions ⋄ Bessel Functions ⋄ Some Special Functions and Spherical Harmonics ⋄ Partial Differential Equations ⋄ Generalized Functions, the Dirac Delta Function and the Fourier Transform ⋄ Group Theory ⋄ *Appendix* ⋄ *References* ⋄ *Index*

Distributed worldwide (except India) by CRC Press LLC, USA, Taylor and Francis Group

2006 | 264 pp. | Paperback
978-81-7371-560-0 | ₹ 375.00

Mechanics of Composite Materials and Structures

Madhujit Mukhopadhyay
Formerly Professor, Department of Ocean Engineering and Naval Architecture, Indian Institute of Technology Kharagpur, Kharagpur, India



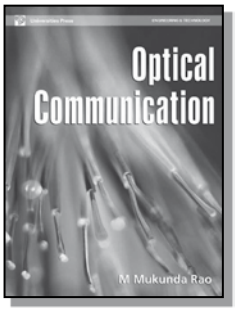
Fibre reinforced plastic (FRP) materials have a wide range of applications in various engineering structures - offshore, maritime, aerospace and civil engineering; machine components; chemical engineering applications and so on. The scope for intelligent exploitation of these composites is ample, though the actual use has been limited. This is mainly because of the paucity of adequate knowledge on FRP composite materials, its structural mechanics and structural analysis among practising engineers. *Mechanics of Composite Materials and Structures* is an attempt to present an integrated and unified approach to the analysis of FRP composite materials. The micromechanics and lamination theory of composite structural elements are discussed in detail. Closed form analytical solutions as well as numerical techniques for solving problems in FRP analysis are presented. Applications of the finite element method for the analysis of FRP structural elements are given considerable emphasis.

Contents: *Preface* ⋄ Introduction to Composite Materials ⋄ Processing of FRP Composites ⋄ Micromechanical Analysis of Composite Strength and Stiffness ⋄ Elastic Properties of the Unidirectional Lamina ⋄ Analysis of Laminated Composites ⋄ Analytical Methods of Laminated Plate ⋄ Analysis of Composite Beams ⋄ Finite Element Analysis of Composite Structures ⋄ Hydrothermal Effects in Laminates ⋄ Failure Theories and Strength of a Unidirectional Lamina ⋄ Analysis of Laminate Strength ⋄ Design of Fiber Reinforced Composite Structures ⋄ Composite Joints ⋄ *Index*

2004 | 388 pp. | Paperback
978-81-7371-477-1 | ₹ 595.00

Optical Communication

M Mukunda Rao
Research Professor, Biomedical Sciences, Ramachandra Medical College and Research Institute, Chennai, India



This book deals with optical electronics and communication, and is intended as a core textbook for use both at the undergraduate and postgraduate levels in engineering colleges. The author discusses a number of important aspects like optical sources, transmission mediums, optical fibres, photodetectors, optical receivers, and modulation and remodulation systems. Each concept is systematically presented starting with the historical background and subsequent developments.

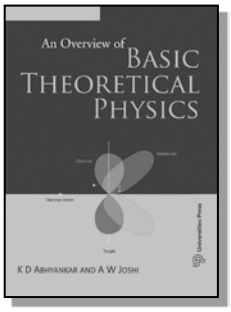
Contents: *Preface* ◆ *Introduction* ◆ Optical Sources: The LASER ◆ Optical Sources: The Semiconductors Laser Diode and Light Emitting Diode ◆ Transmission Medium: Atmospheric Propagation ◆ Transmission Medium: Fiber Optics ◆ Optical Fiber Characterization and Fabrication ◆ Photodetectors and Optical Receivers ◆ Modulation and Demodulation Schemes in Optical Communication ◆ Optical Communication Systems ◆ *Bibliography* ◆ *Physical Constants* ◆ *Index*

2000 | 208 pp. | Paperback
978-81-7371-090-2 | ₹ 295.00

Overview of Basic Theoretical Physics, An

K D Abhyankar (Late)
Former chairman, Department of Astronomy, Osmania University, Hyderabad
Former Director of Nizamiah and Japal-Rangapur Observatories

A W Joshi
Professor (Retd), University of Pune, Pune



This book covers both the pre-quantum and post-quantum development of theoretical physics in a straightforward but fairly rigorous style. Unlike most modern physics courses which gloss over the basic physic subjects in preference to specialised topics like solid state physics, electronics, plasma physics, nanotechnology, cosmology, astrophysics and computer science, this book brings together the various branches of theoretical physics on one platform to give a panoramic view of the subject. The first four chapters of the book deal with the classical topics of Hamiltonian mechanics, theories of relativity, electromagnetic theory of radiation and thermodynamics. They are followed by chapters on atomic spectra and quantum mechanics, spectra of diatomic molecules, quantum theory of radiation, statistical mechanics, and nuclear and particle physics. Guided exercises form a unique feature of this book.

The broad coverage of topics in theoretical physics makes this book an invaluable reference for senior undergraduate and postgraduate students of all branches of physics as well as research workers and physics teachers. The book will also serve for a foundation course for allied subjects such as astrophysics, geophysics, meteorology, laser physics and plasma physics.

Contents: **Hamiltonian Mechanics** ◆ Introduction ◆ System of n particles in Cartesian coordinates ◆ Generalised quantities ◆ Validity of Lagrangian and Hamiltonian equations in generalized coordinates ◆ Principle of least action ◆ Poisson brackets ◆ Contact transformation ◆ Hamilton-Jacobi equation ◆ Some applications of Hamilton-Jacobi equations ◆ The two-body problem ◆ Virial theorem ◆ Problems ◆ **Special and General Theories of Relativity** ◆ Background ◆ Lorentz transformations ◆ Generalised Lorentz transformations ◆ Kinematic applications ◆ Minkowski space ◆ Relativistic mechanics ◆ Elements of general theory of relativity ◆ Gravitational lensing ◆ Problems ◆ **Classical Theory of Radiation** ◆ Maxwell's equations ◆ Electromagnetic waves ◆ Electromagnetic radiation by a molecule ◆ Harmonic oscillator ◆ Properties of transmitting medium ◆ Relativistic transformation of electromagnetic fields ◆ Electrodynamics of moving charges ◆ Scattering of small particles ◆ *Appendix* ◆ Problems ◆ **Thermodynamics** ◆ Definitions ◆ Equation of state ◆ Changes in thermodynamic systems ◆ First law of thermodynamics ◆ Specific heats ◆ Second law of thermodynamics ◆ Absolute temperature ◆ Entropy ◆ The phase rule ◆ Important thermodynamic functions ◆ Theorem of radiation ◆ Spectrum of thermal radiation ◆ Problems ◆ **Atomic Spectra and**

Quantum Mechanics ◆ Bohr's theory of hydrogen atom ◆ Sommerfeld's modification of Bohr's theory ◆ Fundamentals of quantum mechanics ◆ One-dimensional motion ◆ Hydrogen and hydrogen-like atoms in quantum mechanics ◆ Electron spin ◆ Effect of spin in other atoms ◆ Zeeman and Stark effects ◆ Problems ◆ **Molecular Spectra** ◆ Introduction ◆ Pure rotational bands ◆ Vibration-rotation bands ◆ Electronic bands ◆ Multiplet structure of electronic states ◆ Isotope effects ◆ Strengths of bands and lines ◆ Some typical examples of molecular spectra ◆ Problems ◆ **Quantum Theory of Radiation** ◆ Quantization of pure radiation ◆ Radiation and matter ◆ First order approximation for transition ◆ Computation of transition probabilities ◆ Absorption, emission, and Einstein coefficients ◆ Weisskopf.-Wigner picture ◆ Problems ◆ **Statistical Mechanics** ◆ Kinetic theory of gases ◆ Fundamentals of statistical mechanics ◆ Expression for probability ◆ Population functions ◆ Equation of state for fermions ◆ Some aspects of Bose gas ◆ Classical non-degenerate state ◆ Departure from thermodynamic equilibrium ◆ Problems ◆ **Elements of Nuclear and Particle Physics** ◆ Discovery of the nucleus ◆ Structure of the nucleus ◆ Nuclear reactions and liquid-drop model of nucleus ◆ Elements of particle physics ◆ Applications in astrophysics ◆ Problems ◆ *Bibliography* ◆ *Index*

2009 | 512 pp. | Paperback
978-81-7371-655-3 | ₹ 725.00

Physics of Semiconductor Devices
(Second Edition)

Dilip K Roy
Institute of PG Studies and Research, University of Malaya, Malaysia

This book is a comprehensive and up-to-date text providing a lucid perspective of the important concepts and applications of semiconductor devices. It discusses the quantum mechanical tunnel effect on the principles of quantum measurement and observations, and its application in the analysis of *I–V* characteristics of tunnel devices. In this edition, the basic outline of the book and its underlying philosophy remain unchanged. The discussions on 'quantum mechanical tunnelling' have been updated. *Most of the problems in the first edition have been retained and a large number of problems have been added, both as solved examples and as unsolved exercises.* It also contains appendices on amorphous semiconductors and the technology involved in the preparation of semiconductor devices.

Contents: *Preface to the Second Edition* ◆ *Preface* ◆ *Acknowledgements* ◆ *List of Symbols* ◆ Semiconductor Physics: Energy bands ◆ Electrons and holes ◆ Mobility and diffusivity ◆ Intrinsic semiconductor ◆ Doped semiconductor ◆ Temperature dependence of the semiconductor conductivity ◆ Carrier lifetime ◆ Recombination of electrons and holes through traps ◆ Shockely-Read-Hall theory ◆ Optical properties of semiconductors ◆ Gunn effect ◆ Low dimensional quantum phenomena ◆ Physics of PN Junctions: PN homojunctions ◆ Semiconductor heterojunctions ◆ PN Diode equation ◆ A. C. behaviour of PN diodes ◆ Transient response of a PN diode ◆ Solar cells ◆ Light emitting diodes (LEDs) ◆ Laser diodes ◆ Impact avalanche and transit time (IMPATT) diodes ◆ Other configuration of PN diodes ◆ Circuit applications of PN diodes ◆ Transistors Physics: Basic functions of a transistor ◆ Early effect and transistor characteristics ◆ Low-frequency transistor equivalent circuiting ◆ High-frequency transistor behaviour ◆ Graded base transistors ◆ Field-effect transistors ◆ Phototransistor ◆ Unijunction transistor ◆ The four layer PN device ◆ Typical transistor application applications ◆ Metal-semiconductor Devices: Metal-vacuum boundary ◆ Schottky effect ◆ Metal-semiconductor boundary ◆ Ohmic contact ◆ Current transport across a metal-semiconductor boundary ◆ Metal-insulator-semiconductor (MIS) system ◆ Metal-semiconductor field-effect transistor (MESFET) ◆ Metal-oxide-semiconductor field-effect transistor (MOSFET) ◆ Charge coupled devices (CCDs) ◆ Semiconductor Tunnel Devices: Tunnelling from the point of view of quantum measurement ◆ Analysis of the tunnel effect ◆ Heavy-doping effects ◆ Tunnel diodes; Backward and Zener diodes ◆ Metal-insulator-semiconductor-switch (MISS) diode ◆ Tunnel devices of different types ◆ Tunnel diode application ◆ *Appendices* ◆ *Index*

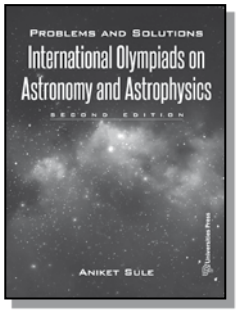
2004 | 488 pp. | Paperback
978-81-7371-494-8 | ₹ 525.00

Problems and Solutions: International Olympiads on Astronomy and Astrophysics

NEW

Aniket Sule
Academic Coordinator, Indian Astronomy Olympiad Programme; Regional Coordinator (Asia-Pacific), International Olympiads on Astronomy and

Astrophysics; Reader, Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research, Mumbai, India



The International Olympiads on Astronomy and Astrophysics (IOAA) are competitions where teams of high-school students from around the world compete in a series of tests and are awarded medals based on their performance. Started in 2007, more than 45 countries have participated in these olympiads. The competition comprises three rounds: theoretical problems, data analysis problems and night sky observation tests. This book presents problems from all the eight IOAAs held thus far. The problems are categorised according to the concepts involved and also graded according to the difficulty level. Solutions to all the problems are provided. Additional notes help make the solutions self-explanatory.

Salient Features:

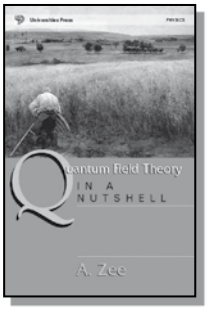
- Presents problems and solutions from all eight olympiads held thus far
- Problems arranged based on topic and level of difficulty
- Non-calculus based approach, making it accessible to high-school students
- Numerical values use the SI system of units wherever applicable
- For problems with multiple solutions, all the solutions are provided
- Includes current syllabus of IOAA

Contents: *Preface* ◆ *Acknowledgments* ◆ *Academic Committees of Previous IOAAs* ◆ *President's Message* ◆ *A Note about the Problems* ◆ *Table of Constants* ◆ Celestial Mechanics ◆ Celestial Coordinate Systems ◆ Geometric Astronomy and Time ◆ Optics and Detectors ◆ Physics of Stars and Planets ◆ Stellar Observations ◆ Binaries and Variables ◆ Galactic Astrophysics ◆ Extragalactic Astrophysics ◆ Night Sky Observation ◆ Solutions: Celestial Mechanics ◆ Solutions: Celestial Coordinate Systems ◆ Solutions: Geometric Astronomy and Time ◆ Solutions: Optics and Detectors ◆ Solutions: Physics of Stars and Planets ◆ Solutions: Stellar Observations ◆ Solutions: Binaries and Variables ◆ Solutions: Galactic Astrophysics ◆ Solutions: Extragalactic Astrophysics ◆ Solutions: Night Sky Observation ◆ *Appendix: Syllabus of IOAA*

2015	304 pp.	Paperback
978-81-7371-980-6		₹ 450.00

Quantum Field Theory: In a Nutshell

A Zee
Permanent Member, Kavli Institute for Theoretical Physics
Professor, Theoretical Physics, University of California, Santa Barbara



An esteemed researcher and acclaimed popular author takes up the challenge of providing a clear, relatively brief, and fully up-to-date introduction to one of the most vital but notoriously difficult subjects in theoretical physics. A quantum field theory text for the twenty-first century, this book makes the essential tool of modern theoretical physics available to any student who has completed a course on quantum mechanics and is eager to go on. Quantum field theory was invented to deal simultaneously with special relativity and quantum mechanics, the two greatest discoveries of early twentieth-century physics, but it has become increasingly important to many areas of physics. These days, physicists turn to quantum field theory to describe a multitude of phenomena. Stressing critical ideas and insights, Zee uses numerous examples to lead students to a true conceptual

understanding of quantum field theory—what it means and what it can do. He covers an unusually diverse range of topics, including various contemporary developments, while guiding readers through thoughtfully designed problems. In contrast to previous texts, Zee incorporates gravity from the outset and discusses the innovative use of quantum field theory in modern condensed matter theory. Without a solid understanding of quantum field theory, no student can claim to have mastered contemporary theoretical physics. Offering a remarkably accessible conceptual introduction, this text will be widely welcomed and used.

2004	536 pp.	Paperback
978-81-7371-512-9		₹ 725.00

Quantum Mechanics

Trilochan Pradhan
Founding Director and Honorary Professor Emeritus, Institute of Physics, Bhubaneswar

This book presents a novel treatment of some unusual topics of non-relativistic theory of quantum mechanics, not often covered in classic texts. Notable among these are the first quantized theory of photons and neutrons (most books give the second quantized theory); Bohr–Sommerfeld 'action' as differential operators with their eigenvalues *n* and *l* and their corresponding eigenfunctions; parabose and parafermi symmetries of identical particles; Dirac's initiation of Lagrangian formulation of quantum mechanics (also known as transformation theory) and its elaboration and completion by Feynman; topological phase of the wavefunction in Bohm–Aharonov, Aharonov–Casher and neutron interferometer experiments (examples of the Berry phase); and quantum beats such as Stark and exchange oscillations similar to $^{-}\kappa\kappa_0$ and neutrino oscillations in particle physics.

Graduate students of physics will find this fresh exposition of topics interesting as also will teachers of physics. The book is intended to broaden one's understanding of quantum mechanics. This is a reference book that most physics departments at universities would like to procure.

Contents: *Preface* ◆ Genesis ◆ Foundations ◆ Symmetry and Conservation Laws ◆ Energy, Momentum and Angular Momentum ◆ Quantum Mechanics of Photon and Neutrino ◆ Passage from Quantum to Classical Mechanics ◆ Solution of Schrödinger Equation ◆ The Hydrogen Atom ◆ Perturbation Theory ◆ Electron Spin and Hydrogen Fine Structure ◆ Identical Particles ◆ The Helium Atom ◆ Emission and Absorption of Photons by Atoms ◆ Scattering of Photons by Atoms ◆ Lamb Shift ◆ Theory of Scattering ◆ Phase of the Wavefunction ◆ Lagrangian Formulation of Quantum Mechanics ◆ Paradoxes in Quantum Mechanics ◆ *Appendix-A* ◆ *Appendix-B* ◆ *Subject Index* ◆ *Author Index*

2008	252 pp.	Paperback
978-81-7371-624-9		₹ 550.00

Second Year Calculus: From Celestial Mechanics to Special Relativity

David M Bressoud

Second Year Calculus: From Celestial Mechanics to Special Relativity covers multi-variable and vector calculus, emphasizing the historical physical problems which gave rise to the concepts of calculus. The book guides us from the birth of the mechanized view of the world in *Isaac Newton's Mathematical Principles of Natural Philosophy* in which mathematics becomes the ultimate tool for modelling physical reality, to the dawn of a radically new and often counter-intuitive age in *Albert Einstein's Special Theory of Relativity* in which it is the mathematical model which suggests new aspects of that reality. The development of this process is discussed from the modern viewpoint of differential forms. Using this concept, the student learns to compute orbits and rocket trajectories, model flows and force fields, and derive the laws of electricity and magnetism. *These exercises and observations of mathematical symmetry enable the student to better understand the interaction of physics and mathematics*.

Contents: F = ma ◆ Vector Algebra ◆ Celestial Mathematics ◆ Differential Forms ◆ Line Integrals, Multiple Integrals ◆ Linear Transformations ◆ Differential Calculus ◆ Integration by Pullback

◆ Techniques of Differential Calculus ◆ The Fundamental Theorem ◆ $E=mc^2$

2010 | 416 pp. | Paperback
978-81-8489-622-0 | ₹ 750.00

Statistical Mechanics: An Elementary Outline
(Revised Edition)

Avijit Lahiri
Formerly Associate Professor, Vidyasagar Evening College, Kolkata, India

The revised edition of *'Statistical Mechanics: An Elementary Outline'* is a novel experiment in the pedagogy of statistical mechanics, wherein the reader is made familiar with the basic concepts relating to the foundations of the subject and, at the same time, gets to know how the practical derivations are worked out in elementary applications. The material is arranged so that the reader can decide which of the two to focus upon, perhaps relegating the latter to a cursory attention in the first reading. The book includes a small number of well-chosen exercises of a heuristic nature, designed to enable the reader to undertake with confidence and initiative the next higher course on the subject. Some of the problems are challenging, like the problem on the anharmonic correction to the equipartition of energy. A number of new topics are introduced in this edition to make the material more complete and solidly founded.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2008 | 290 pp. | Paperback
978-81-7371-614-0 | ₹ 395.00

Textbook of Nanoscience and Nanotechnology

B S Murty
Professor, Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India

P Shankar
Principal, Saveetha School of Engineering, Saveetha University, Chennai, India

Baldev Raj
Director, National institute of Advanced Studies, Indian Institute of Science Campus, Bengaluru, India

B B Rath
Director, Materials Science and Component Technology, Naval Research Laboratory, Washington DC, USA

James Murday
Naval Research Laboratory, Washington DC, USA

See page 31

Thermal Imaging Technology: Design and Applications

R N Singh
Formerly UGC Visiting Professor in Physics, ICS; (currently residing in) Dehradun, India

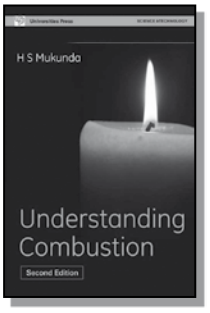
Thermal imaging technology, traditionally a favourite of the military, has made wide inroads into the civilian sector in recent years. The easy availability of a variety of infrared detectors has helped this proliferation. *Thermal Imaging Technology: Design and Applications is an up-to-date account of two important and often inadequately covered aspects of the subject—design of thermal imagers and applications of thermal imaging*. The book looks at all the aspects of design of thermal imagers—from the basic system requirements to factors affecting the choice of detectors, detector materials and types, modelling and development of various design equations/parameters such as sensitivity and resolution, and the associated techniques of infrared optics, signal processing, display, testing, optomechatronics and multisensor data fusion. The steps involved in the design are presented without the aid of design tools such as the NVTherm model or the FLIR-92 model. Examples of applications of thermal imaging in varied fields, primarily military, but increasingly in remote sensing, medical imaging, astronomy, space missions, fault detection and security in industry, etc., bring home the immense potential of this technology. The book provides an interesting insight into the phenomenon of mirages in IR and looks at the effect of the same on image quality. *The book adopts an engineering-oriented rather than a theoretical approach, but enough basic physics has been included to cater to the requirements of a beginner. Graduate students of physics, amateur designers and specialists in the area dealing with design, testing and fabrication of thermal imagers will find the wide ranging discussions on thermal imaging useful*.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2009 | 396 pp. | Paperback
978-81-7371-663-8 | ₹ 1195.00

Understanding Combustion
(Second Edition)

H S Mukunda
Group Leader, Combustion, Gasification and Propulsion Laboratory (CGPL), Department of Aerospace Engineering, Indian Institute of Science, Bengaluru, India



The phenomenon of combustion, seemingly so simple and present almost in all spheres of our lives, is a fascinatingly complex process that involves elements of chemistry, thermodynamics, and fluid mechanics. In *Understanding Combustion*, the author takes on the task of revealing its myriad aspects for the benefit of a general reader with a background in science. The narrative introduces the reader to the process of combustion happening everywhere, in the domestic, industrial and scientific spheres and then goes on to explain the aspects of engineering design involved in the control of the process. From a simple candle flame to cooking stoves to combustion in hybrid rocket engines, the book looks at combustion in varied fuel media, examines the chemistry behind it, analyses the stability of the process and the modelling of combustion devices. *In this revised edition, three new chapters*

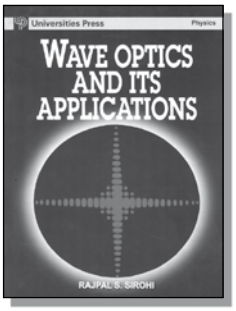
on gasification of solid fuels, emission of pollutants and explosion and detonation have been included to expand the field of discourse to recent developments and also cover practical issues related to conservation of fuels and environmental degradation. This book would be of interest to students of science and technology.

Contents: *Preface to the Second Edition* ◆ *Preface to the First Edition* ◆ *Symbols* ◆ Why should One Attempt to Understand Combustion? ◆ What Do We Burn and Why? ◆ Chemistry and Stoichiometry ◆ How Much Heat? How High a Temperature? ◆ How Does a Reaction Proceed? At What Rate? ◆ Premixed Flames ◆ Inflammability, Quenching ◆ Ignition ◆ Stability, Extinction and Blow-Off of Flames ◆ Diffusion Flames-Gaseous Burner Flames, Droplet Combustion, Boundary Layer Combustion ◆ Flames-Premixed or Diffusion ◆ Combustion in Rocket ◆ Stoves, Burners, Combustors and Their Efficiency ◆ Fire Spread and Fire Prevention ◆ Solid Fuels: Combustion and Gasification ◆ Emissions from Combustion Systems ◆ Explosives - Solid and Liquid ◆ Is There More to Understand? ◆ *Further Reading*

2009	184 pp.	Paperback
978-81-7371-685-0		₹ 375.00

Wave Optics and its Application

S Sirohi Rajpal
Professor of Eminence, Department of Physics, Tezpur University, Assam



With the advent of lasers, microcomputers and electronic detectors, the domain of optics has expanded enormously, and its applications have penetrated almost all areas of science, engineeringand technology.

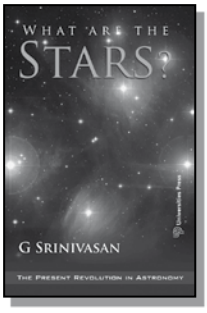
This book discusses some phenomena exhibited by waves. The early chapters analyse the electromagnetic nature of light, the properties of light waves, such as coherence, the applications of interference to length metrology and optical testing and the role of diffraction in image-forming and spectroscopic instruments. Further chapters take a closer look at phenomena such as interference, diffraction and holography on the basis of scalar theory. A chapter on coherent optics discusses the basics of optical data processing. Holography and speckle phenomenon as well as their applications are discussed in a separate chapter. The final chapter on metrology deals with the measurement of commonly encountered parameters with the help of laser-based instruments.

The book will serve as a comprehensive text covering applied optics and optical instrumentation for B.Tech. and M.Sc. students. It will also serve as a useful rererence book for research scholars and engineers working in the area of optics.

2013	420 pp.	Paperback
978-81-7371-909-7		₹ 595.00

What are the Stars?

G Srinivasan
Professor (Retd), Raman Research Institute, Bangalore



This is the first volume in the series '**The Present Revolution in Astronomy**' authored by G Srinivasan. The outstanding question in astronomy at the turn of the twentieth century was: what are the stars and why are they as they are? In this volume, the story of how the answer to this fundamental question was unravelled is narrated in an informal style,

with emphasis on the underlying physics. It also gives an overview of the topics that will be covered in later volumes—white dwarfs, neutron stars, black holes, galaxies, and the universe at large.

I know of no comparable book in the present-day literature that so successfully conveys the excitement of the development of ideas pertaining to the physics of stars, including the newest discoveries, and at the same time explains the fundamentals so well.

E P J van den Heuvel
Professor of Astrophysics
University of Amsterdam, The Netherlands

Contents: *Foreword* ◆ *Preface* ◆ The Present Revolution in Astronomy: An Overview ◆ What Are the Stars? ◆ Stars as Globes of Gas ◆ Eddington's Theory of the Stars ◆ Why Are the Stars as They Are? ◆ Energy Generation in the Stars ◆ Sounds of the Sun ◆ The Smoking Gun is Finally Found ◆ *Epilogue* ◆ *Suggested Reading* ◆ *Index*

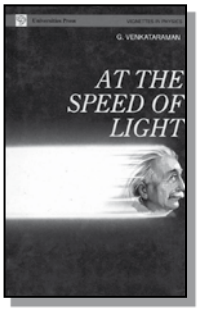
2011	268 pp.	Paperback
978-81-7371-741-3		₹ 350.00

Vignettes in Physics

This series, which is a sort of random walk in physics, is mainly intended to arouse the curiosity of the serious reader, besides capturing the drama and excitement of great discoveries.

At the Speed of Light

G Venkataraman

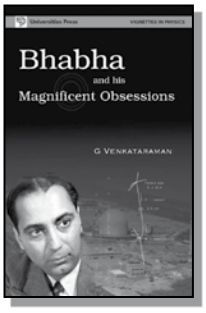


This book is about the Theory of Relativity. The story of Relativity is, in a sense, the story of one man—Albert Einstein. The book deals only with the Special Theory, which you will find is not very difficult to understand.

1992	136 pp.	Paperback
978-81-7371-009-4		₹ 250.00

Bhabha and His Magnificent Obsessions

G Venkataraman



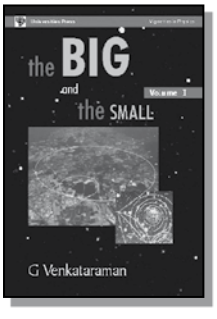
This book is about the remarkable scientist Homi Jehangir Bhabha who, at the age of eighteen, went to Cambridge to study physics and started his research career there. In 1939, when Bhabha came to India on a short vacation, he was forced to stay on as the Second World War broke out. This was, of course, a blessing for the country as he later steered the country's scientific destiny. The book records Bhabha's contributions which were in many dimensions and not just purely scientific.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

1994	222 pp.	Paperback
978-81-7371-007-0		₹ 350.00

Big and the Small, The, Vol. 1: Journey into the Microcosm

G Venkataraman

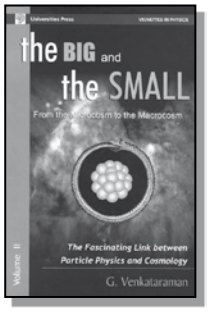


By probing deeper and deeper into the innermost recesses of the atom, physicists have been able to obtain not only a better understanding of the vast cosmos but indeed of the origin of the cosmos itself. This book is about the greatest adventure in human history—man's attempt to reconstruct Creation by a combination of the most daring flights of imagination and mind-boggling experiments. It is, in short, the study of high-energy physics which may aptly be called the second Creation, or man's attempt to reconstruct Creation.

2001	284 pp.	Paperback
978-81-7371-227-2		₹ 375.00

Big and the Small, The, Vol. 2: From the Microcosm to the Macrocosm: The Fascinating Link between Particle Physics and Cosmology

G Venkataraman

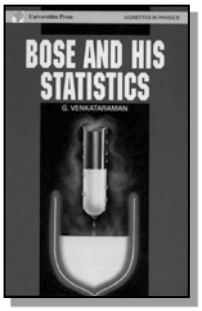


This book is the second part of the two-volume set entitled The Big and the Small. In the earlier volume, Journey into the Microcosm: the Story of Elementary Particles, the story of elementary particle physics was related. In the present volume the author describes how the physics of elementary particles allow us to reconstruct the origin of the universe and its subsequent evolution. Carrying on from the point where volume 1 was concluded, the story of the fascinating quest for the Ultimate Theory (the theory that stands all by itself and does not rest on any other pedestal) is revealed here in the context of the shortcomings of the Standard Model.

2006	232 pp.	Paperback
978-81-7371-574-7		₹ 375.00

Bose and His Statistics

G Venkataraman



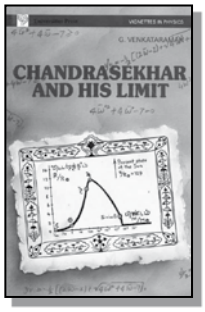
This book describes a monumental discovery made by Satyendranath Bose. It also helps the reader take a step closer in understanding Bose—the scientist—and describes the events that surround this exciting discovery.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

1992	136 pp.	Paperback
978-81-7371-036-0		₹ 250.00

Chandrasekhar and His Limit

G Venkataraman



This is a heart-warming and very inspiring story about Subrahmanyam Chandrasekhar, the most distinguished mathematical physicist India has produced. In a long and remarkable career, Chandrasekhar has done many outstanding things but this book concentrates mostly on

one of them, namely, the discovery of the Chandrasekhar Limit.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

1992	144 pp.	Paperback
978-81-7371-035-3		₹ 250.00

Hot Story, A

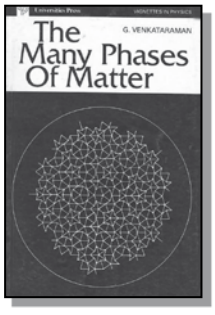
G Venkataraman

This book attempts to explain the terms heat and temperature. But instead of relying mainly on technical explanations that are highly mathematical, the author takes a look at what really lies behind these phenomena.

1992	140 pp.	Paperback
978-81-7371-010-0		₹ 250.00

Many Phases of Matter, The

G Venkataraman

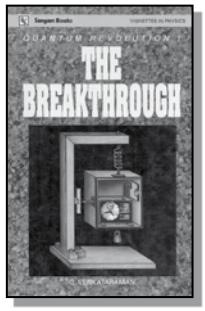


This book is about phase transitions. It seeks to unfold the universal connecting link between diverse physical phenomena, all involving a change of state.

1991	104 pp.	Paperback
978-81-7371-034-6		₹ 250.00

Quantum Revolution I—The Breakthrough

G Venkataraman

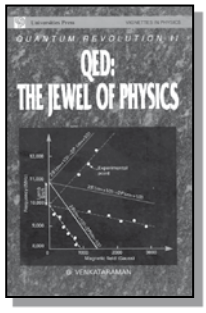


The discovery of quantum mechanics is often hailed as the greatest revolution in human thought. This volume, the first in a series of three, seeks to capture the drama of this supreme achievement.

1993	200 pp.	Paperback
978-81-7371-002-5		₹ 250.00

Quantum Revolution II—The Jewel of Physics

G Venkataraman

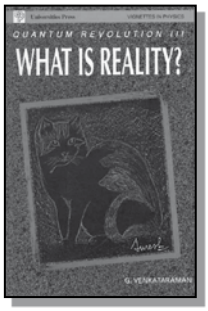


This volume describes how the battle of infinities was fought and, more importantly, about a new approach to quantum mechanics. It deals with the birth of quantum electrodynamics, a theory of incredible and unmatched precision and the most perfect physical theory known to man.

1993	144 pp.	Paperback
978-81-7371-003-2		₹ 250.00

Quantum Revolution III—What is Reality?

G Venkataraman

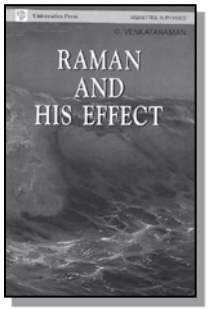


This concluding part of the trilogy on quantum mechanics deals with the fascinating question: Is there really a world out there or does it exist because we see it?

1993	140 pp.	Paperback
978-81-7371-004-9		₹ 250.00

Raman and His Effect

G Venkataraman

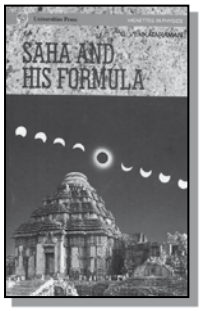


This book deals with the famous Scattering Effect discovered by Sir C V Raman. It gives us deep insights into the character of this famous scientist and vividly describes the circumstances surrounding the discovery.

1995	108 pp.	Paperback
978-81-7371-008-7		₹ 250.00

Saha and His Formula

G Venkataraman



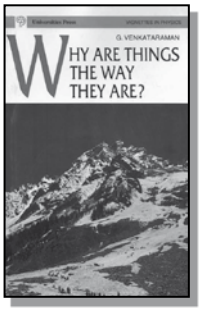
A great leap forward in unravelling the mysteries of the Sun occurred way back in 1920 when Meghnad Saha made an important discovery that paved the way for a systematic study of stellar atmospheres in general. This book is about that great discovery and the man who made it.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

1995	206 pp.	Paperback
978-81-7371-017-9		₹ 275.00

Why are Things the Way they are?

G Venkataraman



This book uses basic calculations to help the student answer questions such as, "Why is the size of an atom roughly 10–8cm and not 1cm?" or "Why is the height of Mount Everest 10 km and not 100 km?" In short, "Why are things the way they are?" This book is an introduction to some methods of making rapid estimates, and

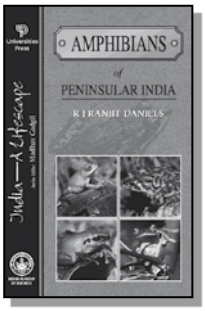
shows how estimated answers can be made in just a few steps.

1992	120 pp.	Paperback
978-81-7371-033-9		₹ 250.00

Wildlife and Natural History

Amphibians of Peninsular India

R J Ranjit Daniels
Founder and Director, Care Earth



Amphibians are considered to be the best indicators of environmental health. A decline in amphibian populations indicates ecosystem deterioration that might affect a wider spectrum of the earth's biological diversity. During the last 12 years there has been a great concern, worldwide, about the rapid decline in amphibian populations. Many reasons have been attributed to the loss of amphibians including habitat loss, UV-B radiation, global warming, toxic chemicals, pathogens that destroy eggs and larval stages, direct harvest and other. Of these, loss of habitat seems to be the most significant factor, at least in tropical countries. In this book, 72 species of Indian amphibians including caecilians have been described. These amphibians are common and widely distributed in peninsular India and represent about one third of all amphibian species known in India. The descriptions are simple and contain, although limited, details of other closely-related species, taking the actual number of amphibian species discussed to well over 100. The many illustrations provided throughout the species accounts and the illustrated keys should make it possible for students and amateur naturalists to identify amphibians in the field without much difficulty. To avoid any confusion that might arise from scientific names that keep changing, those names that have been the most consistently used in India names that have been retained in this book. However, all recent changes have been included as synonyms. Additionally, an appendix that lists out all the known species of Indian amphibians (at the time that the book was written) has been provided.

2004	284 pp.	Paperback
978-81-7371-514-3		₹ 750.00

Birds, Wild Animals and Agriculture

Tara Gandhi
Conservationist and ornithologist, India

The agriculture–wildlife relationship in India is a multidimensional one, ranging from serious conflict situations to varying levels of tolerance and coexistence. Changes in land use patterns and the population explosion have resulted in increased proximity between humans and wildlife. Birds, however, are generally welcomed by farmers for their many useful roles in agriculture.

It is increasingly evident that a way has to be found for humans and wild fauna to live together, ideally in mutually beneficial situations. This book explains the need for a multi-sectoral, locale-specific approach to mitigate distress and to encourage an agreeable relationship between humans and animals. It examines the complexities of the problems concerning conflict and looks at examples of harmonious co-habitation. It is hoped that this work will be useful for agriculturists, wildlife conservationists, students and NGOs working in this field, and

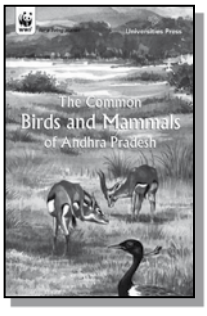
also stimulate interest among government policy makers and implementation agencies.

Contents: *Preface* ◆ *Acknowledgements* ◆ **Part I**: **Aspects of Human–wildlife Conflict and Coexistence** ◆ The Relationship between Birds, Wild Animals and Agriculture in India ◆ Causes of Conflict ◆ The Effect of Agriculture–Wildlife Conflict on Farming Families ◆ Threats to Wildlife in the Agricultural Landscape ◆ Resolving Wildlife–Agriculture Conflict and Promoting Coexistence ◆ Building Capacity and Raising Awareness ◆ Policies and Strategies to Prevent Conflict ◆ Overview of Crop-protection Methods Commonly Used in India ◆ **Part II**: **Birds and Agriculture** ◆ Many Dimensions of the Bird–Agriculture Relationship ◆ Farmer's Friends—Birds that are Beneficial to Agriculture ◆ Threats to Birds Beneficial in Agriculture and Conservation Issues ◆ Crop Damage by Birds ◆ Protecting Crops from Bird Damage ◆ Conserving and Encouraging Birds Beneficial in Agriculture ◆ **Part III: Common Wild Animal Crop Depredators** ◆ Monkeys ◆ Rhesus Macaque ◆ Bonnet Macaque ◆ Hanuman Langur ◆ Ungulates ◆ Indian Wild Boar ◆ Nilgai or Blue Bull ◆ Chital or Spotted Deer ◆ Blackbuck 154 Gaur or Indian Bison ◆ Asian Elephant ◆ Indian Crested Porcupine ◆ **Part IV: Case Studies** ◆ Bird Case Studies ◆ Bird + Animal Case Studies ◆ Animal Case Studies ◆ *Bibliography* ◆ *Appendix* ◆ *Index*

2015	224 pp.	Paperback
978-81-7371-951-6		₹ 575.00

Common Birds and Mammals of Andhra Pradesh, The

WWW-India's Andhra Pradesh State Office



Exquisitely illustrated, this field guide to the common birds and mammals found in Andhra Pradesh describes 157 birds and 42 mammals that commonly occur in the state, with details of their characters, habits and habitat. The book also has information on:

- ecosystems found in the state
- areas listed as protected, with details on the location, accessibility, and the special features of the sanctuaries and national parks
- checklists of birds from a few bird areas in the state
- the protected status of birds and mammals of Andhra Pradesh

2009	164 pp.	Paperback
978-81-7371-653-9		₹ 395.00

Conservation Biology: A Primer for South Asia

Kamaljit S Bawa
Distinguished Professor of Biology, University of Massachusetts, Boston

Richard B Primack
Professor, Department of Biology at Boston University, Boston

Meera Anna Oommen
Ecologist and Founding trustee, Dakshin Foundation, Bangalore

This introductory book on conservation biology is based on Richard Primack's widely used *A Primer of Conservation Biology*. It explores the key concepts of conservation using examples from South Asia, home to some of the world's most exotic species that are now facing the threat of extinction. The book draws attention to the rapid decline in the biodiversity of this region and emphasises the need for urgent action. It also discusses the initiatives that are being undertaken in the region such as involving local communities, framing laws and policies, and identifying research areas that will help stem

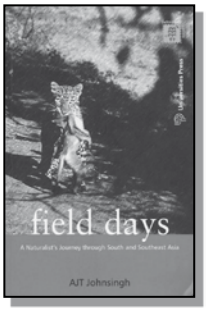
further loss in biodiversity and make the long term goal of protecting our species successful.

Special Features: Numerous case studies from South Asia ◆ Discusses the involvement of indigenous tribes in preserving biodiversity ◆ Outlines specific research areas that are to be focussed on for implementation of successful conservation programmes

2011	604 pp.	Paperback
978-81-7371-724-6		₹ 875.00

Field Days - A Naturalist's Journey through South and Southeast Asia

A J T Johnsingh
Former Dean, Faculty of Wildlife Sciences, Wildlife Institute of India, Dehra Dun, India

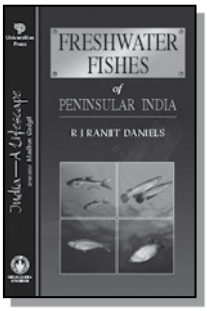


As a young boy in south India, AJT Johnsing avidly read Jim Corbett in Tamil translation: apart from the nail-biting adventure, Corbett's writing provided fine details on the landscapes, forests and wildlife of the Himalaya, observing and interpreting perfectly the sights, sounds and smells of the jungle. Growing up to become a wildlife biologist of great repute, Dr Johnsingh gained access to some of the most lush and remote forests in the world, and began to record his observations carefully. Each of the thirty-seven articles in this book is a journey into a protected forest, some well-known and others rarely accessed. Nearly always a long walk is involved, a walk that picks up details that an untrained eye would easily miss. Close encounters with temperamental tuskers, protective elephant mothers, reclusive tigers, poachers, villagers, tribal communities and forest guards pepper these walks. Dr Johnsingh's analyses include his deep concern for the tremendous challenge ahead if these places and their inhabitants are to be conserved in the face of an alarming onrush of humanity. Each journey, finally, involves a thoroughly enjoyable understanding of the protected area, its history, people, plants and wildlife.

2005	256 pp.	Paperback
978-81-7371-552-5		₹ 550.00

Fresh Water Fishes of Peninsular India

R J Ranjit Daniels
Founder and Director, Care Earth



This is a lucidly written field guide describing 75 taxa of fishes that commonly inhabit the fresh waters of Peninsular India. This can serve as a good addition to the existing Biology textbooks as many of the species have not been studied until now. The book is lavishly illustrated with black and white illustrations, line drawings as well as colour photographs. Common English and local names are given in addition to scientific nomenclature for the fishes.

2001	224 pp.	Paperback
978-81-7371-409-2		₹ 625.00

M. Krishnan: Eye in the Jungle - Photographs and Writings

Ashish Chandola
Freelance cameraman

Shanti Chandola
Freelance field assistant

Thanjavur Nateshachary Ayyam Perumal
Nature Photographer

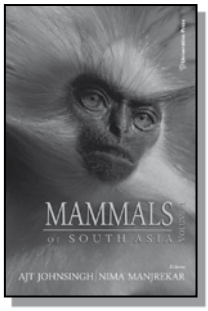
M Krishnan (1912-1996) was endowed with a wide range of interests and amazing prowess as a writer in both his native Tamil and English. He wrote on anything that caught his attention, from dog-shows to cricket, local breeds of cattle to temple carvings, squirrels in his backyard to elephants, gaur and mouse deer of the forests. He did not just write occasionally, but wrote steadily and inspiringly for well over 35 years. A pioneer in the field of black & white photography, Krishnan's contribution to wildlife photography and writing on natural history in India has no parallel. In this special compilation, an effort has been made to select lively and anecdotal text for which Krishnan has been recognized, to accompanyu images that he created which are in a class of their own. E.P. Gee, the eminent naturalist and Forest Officer, described Krishnan in the following words in his famous book, the Wildlife of India, first published in 1964: "I think of M Krishnan, one of the best naturalists of present day India. He is middle-aged, active and does a lot of writing on natural history for newspapers and magazines. he is an artist also, and an expert wildlife photographer. 'Every Hair' must be his motto, for his pictures show the finest detail of the coats of gaur, sambar, chital and the life, and every wrinkle on the skin of a wild elephant...He is a bit of a 'lone wolf', one who does not care for meetings or advisory boards, but as a naturalist had no equal..."

2005	128 pp.	Hardback
978-81-7371-554-9		₹ 1,650.00

The Mammals of South Asia - VOLUME 1

AJT Johnsingh
Former Dean, Faculty of Wildlife Sciences, Wildlife Institute of India, Dehra Dun, India

Nima Manjrekar
Wildlife biologist, India



A complete guide to the mammals of South Asia, lavishly illustrated with colour plates and photos. The species accounts cover all aspects of field identification, including in-depth sections on distribution, behaviour, status and population. Anyone interested in the wildlife of the subcontinent will find this book an invaluable aid to identifying and understanding the region's diverse mammalian fauna.

Volume 1 covers insectivores, bats, primates, canids and felids, while Volume 2 focuses on marine mammals, elephant, rhinoceros, bovids, cervids, and rodents.

Over 75 authors have contributed on areas of specialised research. Many of the species, like the Arunachal macaque, are covered in such detail for the first time in a popular publication.

Contents: *Preface* ◆ *Acknowledgements* ◆ *Foreword* ◆ Introduction (**Order: Insectivora**) ◆ Insectivores (**Order: Scandentia**) ◆ Treeshrews (**Order: Chiroptera**) ◆ Bats (**Order: Primates**) (*Family*: Lorisidae) ◆ Slender loris ◆ Slow loris (*Family*: Cercopithecidae) ◆ Lion-tailed macaque ◆ Rhesus macaque ◆ Bonnet macaque ◆ Toque macaque ◆ Assamese macaque ◆ Arunachal macaque ◆ Grey langur ◆ Nilgiri langur ◆ Golden langur ◆ Phayre's langur ◆ Capped langur ◆ Purple-faced langur (*Family*: Hylobatidae) ◆ Hoolock gibbon (**Order**: **Carnivora**) ◆ (*Family*: Canidae) ◆ Indian fox ◆ Golden jackal ◆ Indian wolf ◆ Asiatic wild dog ◆ (*Family*: Ursidae) ◆ Asiatic black bear ◆ Himalayan brown bear ◆ Sloth bear ◆ (*Family*: Procyonidae) ◆ Red panda ◆ *Family*: Herpestids, Viverrids and Mustelids ◆ Otters ◆ (*Family*: Hyaenidae) ◆ Striped hyena ◆ (*Family*: Felidae) ◆ Small cats ◆ Snow

leopard ◆ Leopard ◆ Asiatic lion ◆ Tiger ◆ *List of contributors* ◆ *Species index*

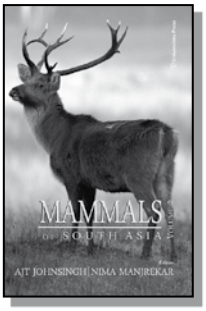
212	766 pp.	Paperback
978-81-7371-590-7		₹ 1,850.00

The Mammals of South Asia - VOLUME 2

NEW

AJT Johnsingh
Former Dean, Faculty of Wildlife Sciences, Wildlife Institute of India, Dehra Dun, India

Nima Manjrekar
Wildlife biologist, India



A complete guide to the mammals of South Asia, lavishly illustrated with colour plates and photos. The species accounts cover all aspects of field identification, including in-depth sections on distribution, behaviour, status and population. Anyone interested in the wildlife of the subcontinent will find this book an invaluable aid to identifying and understanding the region's diverse mammalian fauna.

Volume 1 covers insectivores, bats, primates, canids and felids, while Volume 2 focuses on marine mammals, elephant, rhinoceros, bovids, cervids, and rodents.

Over 75 authors have contributed on areas of specialised research. Many of the species, like the Arunachal macaque, are covered in such detail for the first time in a popular publication.

Contents: *Preface* ◆ *Acknowledgements* ◆ *Foreword* ◆ Introduction (**Order: Cetacea, Sirenia**) ◆ Marine mammals (**Order: Cetacea**) ◆ Ganges river dolphin (**Order: Proboscidea**) ◆ Asian elephant (**Order: Perissodactyla**) ◆ (*Family*: Rhinocerotidae) ◆ Greater one-horned rhinoceros (*Family*: Equidae) ◆ Wild asses (**Order: Artiodactyla**) ◆ (*Family*: Suidae) ◆ Pygmy hog (*Family*: Tragulidae) ◆ The chevrotains ◆ (*Family*: Moschidae) ◆ Musk deer (*Family*: Cervidae) ◆ Muntjac or barking deer ◆ Chital ◆ Sambar ◆ Barasingha (Indian swamp deer) ◆ Eld's deer ◆ Hog deer ◆ (*Family*: Bovidae) ◆ Gaur ◆ Nilgai ◆ Chousingha or four-horned antelope ◆ Blackbuck ◆ Chinkara or Indian gazelle ◆ Serow ◆ Goral ◆ Takin ◆ Himalayan tahr ◆ Nilgiri tahr ◆ Himalayan ibex ◆ Bharal ◆ Other wild goats and sheep (**Order: Rodentia**) ◆ (*Family*: Sciuridae) ◆ Indian giant squirrel ◆ Grizzled giant squirrel ◆ Sciurids ◆ (*Family*: Muridae) ◆ South Asian muroids (*Family*: Hystricidae) ◆ Indian crested porcupine ◆ Little-known mammals ◆ Diseases and parasites of wild mammals ◆ Checklist of mammals of South Asia ◆ *List of contributors* ◆ *Species index*

2015	766 pp.	Paperback
978-81-7371-589-1		₹ 1,850.00

Science of Saving Tigers, The

Ullas Karanth
Scientist, Conservation activist

The Science of Saving Tigers puts together twenty significant articles on topics ranging from tiger ecology to critiques of government policy from a selection of over seventy that have appeared in various national and international journals, spanning Dr Karanth's work over two decades. It is essential reading for serious students of conservation biology and will serve as a vital information resource for tiger conservationists in particular.

2011	340 pp.	Paperback
978-81-7371-609-6		₹ 750.00

Spiders of India

P A Sebastian
Reader, Division of Arachnology, Sacred Heart College, Kochi

K V Peter
Former Vice-Chancellor, Kerala Agricultural University

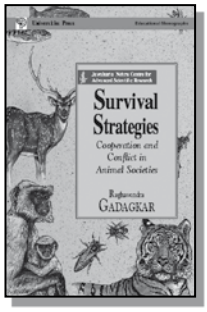
This is the only modern book available on the subject, and will prove an invaluable resource for professionals, students, naturalists, and researchers in zoology, entomology, ecology and physiology.

The first part of the book looks at the morphology and anatomy of spiders, as well as systematics and evolution. The second part provides detailed descriptions of selected species. The book also contains, importantly, a decisive and updated checklist of the 1,520 spiders which have been described from India. It is richly illustrated with line drawings and diagrams, and more than 150 colour photographs, many documented for the first time.

2009	734 pp.	Hardback
978-81-7371-641-6		₹ 1695.00

Survival Strategies: Cooperation and Conflict in Animal Societies

Raghavendra Gadagkar



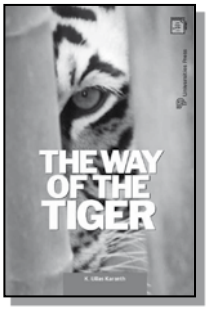
Did you know that Tasmanian hens have two husbands? That vampire bats will share food with hungry fellow bats and that Hanuman langurs commit infanticide? Why creatures great and small behave in such fascinating and seemingly perplexing ways is explained in this delightful account of the evolutionary foundations of animal social behaviour. Illustrated with both photographs and explanatory diagrams, this expert and inviting tour of the social world of animals will inform and charm anyone curious about the motivations behind the amazing range of activity in the animal kingdom.

1998	192 pp.	Paperback
978-81-7371-114-5		₹ 295.00

Way of the Tiger, The

Ullas Karanth

Conservation scientist, Wildlife Conservation Society, New York



The Way of the Tiger was first published in the UK and US as a coffee-table book on tigers. This special South Asia edition carries Dr Karanth's excellently written text, without the pictures. This book tells you everything you want to know about tigers. It is an outstanding primer on tigers and very simply and well-written; a scientist writing about his subject for a popular audience. The author talks about the human fascination for tigers, and then examines social and predatory behaviour in wild tigers; evolution and genetics; research and census methods; threats, past and present, to the existence of this endangered mega-carnivore; and various conservation policies necessary to reverse the decline of tigers. What sets it apart is the positive conservation message that underlines the text; the author disagrees with 'doomsday prophecies' and convincingly argues that wild tigers can be saved with timely action guided by reliable knowledge.

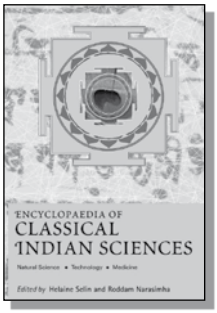
2006	144 pp.	Paperback
978-81-7371-556-3		₹ 450.00

Encyclopaedia

Encyclopaedia of Classical Indian Sciences

Helaine Selin
Formerly Professor, Hampshire College, Amherst, USA

Roddam Narasimha
DST Year-of-Science Professor, Jawaharlal Nehru Centre for Advanced Science Research, Bengaluru, India



India's contributions to science and technology are among the most ancient and influential in the world. In mathematics, the decimal place value system with zero as a numeral, used universally today, owes its origin to India. The science of Ayurveda, which has been practised for millennia in India, is now gaining wider acceptance even as many ancient remedies are turned into modern drugs. Indian astronomical computations, ritual geometry, brick technology and metallurgical innovations have been among the finest achievements in the world of science and technology.

Encyclopaedia of Classical Indian Sciences is an attempt to provide an authentic account of natural science, technology and medicine as practised by Indians and other South Asians. It also includes biographical articles on many ancient Indian scientists, and some articles (polemic in nature) on the history of Indian science and technology, such *as the essay on the effects of colonialism. All articles are contributions of acknowledged authorities on their subject drawn from across the world*.

Contents: Preface ◆ Acknowledgements ◆ Agriculture ◆ Alchemy ◆ Algebra: Bijaganita ◆ Arithmetic: Patiganita ◆ Armillary Spheres ◆ Aryabhata ◆ Astrology ◆ Astronomical Instruments ◆ Astronomy ◆ Astronomy in the Indo-Malay Archipelago ◆ Atomism ◆ Atreya ◆ Bakhshali Manuscript ◆ Baudhayana ◆ Bhaskara I ◆ Bhaskara II ◆ Al-Biruni ◆ Brahmagupta ◆ Bricks ◆ Calculus ◆ Calendars ◆ Candrasekhara Samanta ◆ Caraka ◆ City Planning ◆ Colonialism and Science ◆ Combinatorics in Indian Mathematics Decimal Notation ◆ Desantara ◆ Devacarya ◆ Dyes ◆ East and West ◆ East and West: India in the Transmission of ◆ Knowledge from East to West ◆ Eclipses ◆ Environment and Nature ◆ Epilepsy ◆ Ethnobotany ◆ Forestry ◆ Geography ◆ Geometry ◆ Gnomon ◆ Haridatta ◆ Irrigation in India and Sri Lanka ◆ Jagannatha Samrat ◆ Jai Singh ◆ Jayadeva ◆ Kamalakara ◆ Knowledge Systems: Local Knowledge ◆ Knowledge Systems ◆ Lalla ◆ Lunar Mansions in Indian Astronomy ◆ Madhava of Sangamagrama ◆ Magic and Science ◆ Magic Squares in Indian Mathematics ◆ Mahadeva ◆ Mahavlra ◆ Mahendra Suri ◆ Makaranda ◆ Maps and Mapmaking ◆ Mathematics ◆ Medical Ethics ◆ Medicine: Ayurveda ◆ Medieval Science and Technology ◆ Metallurgy: Bronzes of South India ◆ Metallurgy: Iron and Steel ◆ Metallurgy: Zinc and its Alloys: Ancient Smelting Technology ◆ Meteorology ◆ Military Technology ◆ Munisvara ◆ Narayana Pandita ◆ Navigation ◆ Number Theory ◆ Observatories ◆ Paksa ◆ Parameswara ◆ Paulisa ◆ Physics ◆ Pi in Indian Mathematics ◆ Precession of the Equinoxes ◆ Putumana Somayaji: ◆ Rainwater Harvesting ◆ Ramanujan ◆ Rationale in Indian Mathematics ◆ Rockets and Rocketry ◆ Salt ◆ Sailkara Variyar ◆ Satananda ◆ Science as a Western Phenomenon ◆ Sexagesimal System ◆ Sphujidhvaja ◆ Sridhara ◆ Sripati ◆ Sulbasutras ◆ Suryasiddhanta ◆ Susruta ◆ Technology and Culture ◆ Textiles ◆ Time ◆ Trigonometry ◆ Vakyakarana ◆ Values and Science ◆ Varahamihira ◆ Vatesvara ◆ Weights and Measures in the Indus Valley ◆ Western Dominance ◆ Wind Power ◆ Yavanesvara ◆ Yoga ◆ Yuktibhasa

of Jyesthadeva ◆ Zero ◆ Zij ◆ Zodiac ◆ List of Contributors ◆ Index

Available in print and e-book format.
For details, visit www.universitiespress.com.

2007	492 pp.	Hardback
978-81-7371-555-6		₹ 1,100.00

Fast Science Facts

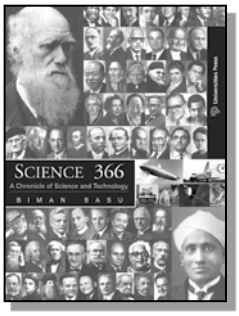
Surendra Verma

This book is a unique collection of basic science facts, concepts and ideas presented in an easy-to-use format. It incorporates the best features of science dictionaries, encyclopedias, handbooks, data books and textbooks.

1998	248 pp.	Paperback
978-81-7371-092-6		₹ 450.00

Science 366: A Chronicle of Science and Technology

Biman Basu
Formerly Editor, Science Reporter, Council of Scientific and Industrial Research (CSIR), New Delhi, India



Dates have an important place in our lives—not only are they historical occasions that we observe every year but they are also milestones to measure our growth in age, prosperity and wisdom. Therefore, dates in the scientific field can be used as a measure of progress in our quest for the unknown—dates when some important scientific discovery was made or some famous scientist was born. There are also dates that mark important breakthroughs in our understanding of the universe around us—new discoveries and new inventions that have changed our life.

This book can be considered a diary of scientific events—both Indian and international—including dates related to scientists and their works; inventors and their inventions; scientific organisations; and important scientific occurrences.

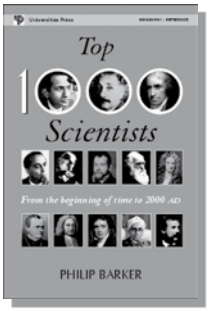
The entries are arranged chronologically. An entry for the date of birth of a scientist or inventor gives a brief biography of the person, while an entry for the date of founding or inauguration of a scientific institution gives a brief summary of the activities and achievements of the institution. All the entries are cross-referenced for easy navigation.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2008	712 pp.	Paperback
978-81-7371-607-2		₹ 1,225.00

Top 1000 Scientists: From the Beginning of Time to 2000 AD

Philip Barker
Scholar of the History of Science



The history of scientific progress is full of surprises. How many people realise, for example, that the term 'electricity' was coined in 1646?, or that Benjamin Franklin invented the lightning conductor?, that even a seemingly recent invention such as the television turns out to have been patented in 1884.

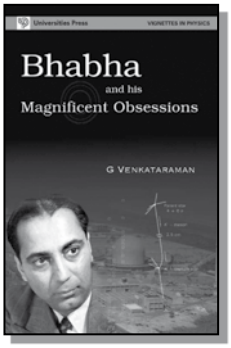
This book covers science and scientists from the earliest recorded days right up to the new millennium, and will become an invaluable reference work as well as a delight to dip into.

2002	448 pp.	Paperback
978-81-7371-210-4		₹ 750.00

Biographies

Bhabha and His Magnificent Obsessions

G Venkataraman



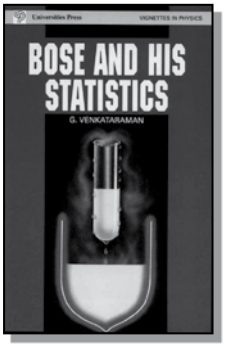
This book is about the remarkable scientist Homi Jehangir Bhabha who, at the age of eighteen, went to Cambridge to study physics and started his research career there. In 1939, when Bhabha came to India on a short vacation, he was forced to stay on as the Second World War broke out. This was, of course, a blessing for the country as he later steered the country's scientific destiny. The book records Bhabha's contributions which were in many dimensions and not just purely scientific.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

1994	222 pp.	Paperback
978-81-7371-007-0		₹ 350.00

Bose and His Statistics

G Venkataraman



This book describes a monumental discovery made by Satyendranath Bose. It also helps the reader take a step closer in understanding Bose—the scientist—and describes the events that surround this exciting discovery.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

1992	136 pp.	Paperback
978-81-7371-036-0		₹ 250.00

Chandrasekhar and His Limit

G Venkataraman

This is a heartwarming and very inspiring story about Subrahmanyam Chandrasekhar, the most distinguished mathematical physicist India has produced. In a long and remarkable career, Chandrasekhar has done many outstanding things but this book concentrates mostly on one of them, namely, the discovery of the Chandrasekhar Limit.

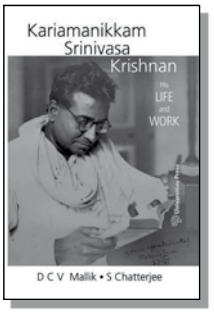
Available in print and e-book formats.
For details, visit www.universitiespress.com.

1992	144 pp.	Paperback
978-81-7371-035-3		₹ 250.00

Kariamanikkam Srinivasa Krishnan: His Life and Work

D C V Mallik
Formerly Professor, Indian Institute of Astrophysics, Bengaluru, India

S Chatterjee
Professor, Indian Institute of Astrophysics, Bengaluru, India



The first four decades of the 20th century were glorious years for science, especially physics.

Our view of the physical world changed forever with the emergence of quantum mechanics and Einstein's formulation of the theory of relativity. India too contributed significantly to this scientific revolution with the discoveries made by S N Bose, C V Raman and M N Saha, all in the space of about a decade. *Kariamanikkam Srinivasa Krishnan (1898-1961)* belonged to the same illustrious group. He was perhaps the only Indian physicist of his generation who was equally adept in theory and experiment. Besides a life of excellence in science, Krishnan's destiny led him to be an able science policy maker and administrator. *He was also a great teacher, a humanist and a scholar of Sanskrit, Tamil literature and philosophy*.

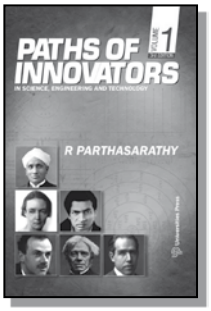
This biography, besides being a detailed and meticulously documented account of Krishnan's life and his scientific work, is also an *exciting account of the history of Indian science of the period. The source material of this work, most of which are being used for the first time, comes from the private papers of K S Krishnan that had remained in the custody of his family*.

Contents: Foreword ◆ Acknowledgement ◆ Prologue ◆ Background ◆ Childhood and Schooling ◆ College Years ◆ Science Education and Its Beginnings in Calcutta ◆ Calcutta ◆ Scattering of Light ◆ Discovery of the Raman Effect ◆ Dacca ◆ Bonds of Magnetism I: The Dacca Phase ◆ Winds of Change ◆ Bonds of Magnetism II: The Calcutta Phase ◆ Graphite and Its anomalous Diamagnetism ◆ Honours and Offers ◆ The Physics Chair at Allahabad ◆ Rejuvenating Physics in Allahabad ◆ The Widening Vista ◆ Krishnan in Delhi ◆ NPL: The Initial Years ◆ Oscillating Lattices, Emitting Surfaces, Heated Tubes ◆ The Broader Stage ◆ Into the Twilight ◆ *Appendix* ◆ *Primary Sources* ◆ *Bibliography* ◆ *Index*

2011 978-81-7371-748-2	516 pp.	Hardback ₹ 1,150.00
2011 978-81-7371-749-9	516 pp.	Paperback ₹ 750.00

Paths of Innovators, VOLUME 1

R Parthasarathy
Formerly Professor, Department of Physics, IIT Madras, Chennai, India



This is the first volume of a set of two volumes. It comprises a collection of scientists' lives, their struggles, their achievements and their laurels. The scientists have been grouped under five disciplines—Engineering, Physics, Mathematics, Chemistry and Life Sciences. The reader meets people from various backgrounds—those with insufficient schooling, those with little money, those born into aristocracy, those with science in their blood, those battling with grave illnesses, those who moved from one discipline to another (as different as possible from each other); ultimately culminating in path-breaking scientific discoveries. *The aim of these brief biographical sketches is to inspire a wider audience to take up the noble pursuit of pure sciences*.

Contents: *Engineering:* Appleton, Edward ◆ Arago, Jean ◆ Babbage, Charles ◆ Baird, John ◆ Callendar, Hugh ◆ Carnot, Sadi ◆ Cotton, Arthur ◆ Diesel, Rudolf ◆ Esaki, Leo ◆ Faraday, Michael ◆ Fulton, Robert ◆ Giaever, Ivar ◆ Haber, Fritz ◆ Haggerty, Patrick ◆ Heaviside, Oliver d Henry, Joseph ◆ Hertz, Heinrich ◆ Karman, Theodore von ◆ Kelvin, Lord ◆ Krupp, Alfred ◆ Langmuir, Irving ◆ Marconi, Guglielmo ◆ Ohain, Hans von ◆ Shannon, Claude ◆ Taylor, GI ◆ Terzaghi, Karl ◆ Tesla, Nicola ◆ Steinmetz, Charles ◆ Stephenson, George ◆ Watt, James ◆ Whittle, Frank ◆ Zworykin, Vladimir

Physics: Becquerel, Henri ◆ Bohr, Niels ◆ Boltzmann, Ludwig ◆ Born, Max ◆ Bragg, William Lawrence ◆ Cavendish, Henry ◆ Chadwick, James ◆ Coulomb, Charles ◆ Crookes, William ◆ Dirac, Paul ◆ Doppler, Christian ◆ Fermi, Enrico ◆ Foucault, Jean ◆ Fraunhofer, Joseph ◆ Fresnel, August ◆ Heisenberg, Werner ◆ Helmholtz, Hermann ◆ Huygens, Christian ◆ Kapitza, Peter ◆ Mach, Ernst ◆ Millikan, Robert ◆ Pauli, Wolfgang ◆ Peltier, Jean Charles ◆ Planck, Max ◆ Raman, CV ◆ Roentgen, William ◆ Rutherford,

Ernst ◆ Stefan, Josef ◆ van der Waals, Johannes ◆ Wien, Wilhelm ◆ Young, Thomas

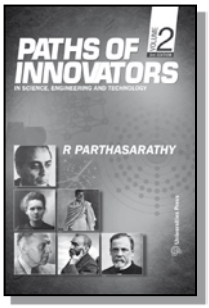
Mathematics: Abel, Henrik ◆ Bessel, Friedrich ◆ Boole, George ◆ Bradley, James ◆ Cantor, Georg ◆ Cauchy, Augustin ◆ Chandrasekar, S ◆ Descartes, Rene ◆ Erdos, Paul ◆ Euler, Leonhard ◆ Fourier, Joseph ◆ Galois, Evariste ◆ Gauss, Carl ◆ Halley, Edmund ◆ Hawking, Stephen ◆ Hilbert, David ◆ Herschel, John ◆ Herschel, William ◆ Lagrange, Joseph ◆ Laplace, Pierre ◆ Leibniz, Gottfried ◆ Pascal, Blaise ◆ Poincare, Henri ◆ Ramachandra, Yasudas ◆ Ramanujan, Srinivasa ◆ Riemann, Bernhard ◆ Wiener, Norbert

Chemistry: Arrhenius, Svante ◆ Avogadro, Amedeo ◆ Berthollet, Claude ◆ Berzelius, Jacob ◆ Black, Joseph ◆ Bunsen, Robert ◆ Dalton, John ◆ Dulong, Pierre ◆ Fourcroy, Antoine ◆ Gay-Lussac, Joseph ◆ Hodgkin, Dorothy ◆ Hofmann, August von ◆ Joliot-Curie, Irene ◆ Kekule, Friederich ◆ Lavoisier, Antoine ◆ Liebig, Justus von ◆ Mendeleev, Dmitri ◆ Perkin, William

2012 456 pp. Paperback
978-81-7371-750-5 ₹ 650.00

Paths of Innovators, VOLUME 2

R Parthasarathy
Formerly Professor, Department of Physics, IIT Madras, Chennai, India



This is the second volume of a set of two volumes. It comprises a collection of scientists' lives, their struggles, their achievements and their laurels. The scientists have been grouped under five disciplines—Engineering, Physics, Mathematics, Chemistry and Life Sciences. The reader meets people from various backgrounds—those with insufficient schooling, those with little money, those born into aristocracy, those with science in their blood, those battling with grave illnesses, those who moved from one discipline to another (as different as possible from each other); ultimately culminating in path-breaking scientific discoveries. *The aim of these brief biographical sketches is to inspire a wider audience to take up the noble pursuit of pure sciences.*

Contents: *Engineering:* Ampere, Andre-Marie ◆ Benz, Karl ◆ Bessemer, Henry ◆ Bhabha, Homi ◆ Bosch, Carl ◆ Cayley, George ◆ Cockcroft, John ◆ Daimler, Gottlieb ◆ De Laval, Gustav ◆ Francis, James ◆ Grove, Andrew ◆ Guillemin, Ernst ◆ Kaplan, Victor ◆ Kelly, William ◆ Khosla, AN ◆ Korolov, Sergi ◆ Lienthal, Otto ◆ Mond, Ludwig ◆ Morse, Samuel ◆ Otto, Nikolous ◆ Parsons, Charles ◆ Pelton, Lester ◆ Prandtl, Ludwig ◆ Reynolds, Osborne ◆ Sarabhai, Vikram ◆ Seshu, Sundaram ◆ Sperry, Elmer ◆ Tata, JRD ◆ Vishveshwaraya, M ◆ Von Bekesy, Georg ◆ Westinghouse, George ◆ Wheatstone, Charles ◆ Wollaston, William ◆ Wright, Orville ◆ Wright, Wilbur

Physics: Blackett, PMS ◆ Blau, Mariette ◆ Bose, JC ◆ Bose, SN d Boyle, Robert ◆ Brewster, David ◆ Claussius, Rudolf ◆ Compton, Arthur ◆ Curie, Pierre ◆ de Broglie, Louis ◆ Ehrenfest, Paul ◆ Franck, James ◆ Gabor, Dennis ◆ Geiger, Hans ◆ Hahn, Otto ◆ Herzberg, Gerad ◆ Hess, Victor ◆ Kilby, Jack ◆ Kramers, Hendrik ◆ Krishnan, KS ◆ Landau, Lev ◆ Lawrence, Ernest ◆ Lenard, Philip ◆ Lenz, Henirich ◆ Lorentz, Hendrik ◆ Meitner, Lise ◆ Michelson, Albert ◆ Mosley, Henry ◆ Neel, Louis ◆ Oppenheimer, Robert ◆ Rabi, II ◆ Rayleigh, Lord ◆ Rotblat, Joesph ◆ Saha, MN ◆ Schrodinger, Erwin ◆ Seaborg, Glenn T ◆ Smith, George ◆ Sommerfeld, Arnold ◆ Stern, Otto ◆ Szilard, Leo ◆ Weber, Wilhelm ◆ Wilson, CTR

Mathematics: Bolyai, Janos ◆ Bolyai, Wolfgang ◆ Carbano, Gerolomo ◆ Cayley, Arthur ◆ Chebyshev, Pafulty ◆ D'Alembert, Jean ◆ de Moivre, Abraham ◆ De Morgan, Augustus ◆ Dirichlet, Peter ◆ Galileo, Galilei ◆ Green, George ◆ Hamilton, William ◆ Hermite, Charles ◆ Hubble, Edwin ◆ Jacobi, Carl ◆ Klein, Felix ◆ Kronecker, Leopold ◆ Lefschetz, Solomon ◆ Legendre, AM ◆ Louisville, Joseph ◆ Lyapunov, Alexander ◆ Mahalanobis, PC ◆ Moebius, August ◆ Monge, Gaspard ◆ Nash, John ◆ Pierce, Charles ◆ Pluecker, Julius ◆ Poisson, Simon ◆ Ranganathan, SR ◆ Steiner, Jakob ◆ Sylvester, James ◆ Taylor, Brook ◆ Von Neumann, John ◆ Weierstrass, Karl ◆ Whitehead, AN

Chemistry: Curie, Marie ◆ Davy, Humphry ◆ Debye, Peter ◆ Fischer, Emil ◆ Ghosh, JC ◆ Gibbs, Willard ◆ Haber, Fritz ◆ Klaproth, Martin ◆ Kopp,

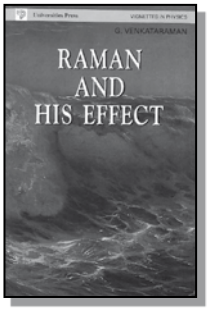
Hermann ◆ Le Chatlier, Henry ◆ Lewis, GN ◆ Meyer, Victor ◆ Mitscherlich, Eilhard ◆ Nernst, Walther ◆ Nobel, Alfred ◆ Ostwald, Wilhelm ◆ Pauling, Linus ◆ Priestley, Joseph ◆ Ray, Acharya PC ◆ Seshadri, TR ◆ Soddy, Frederick ◆ Urey, Harold ◆ Van't Hoff, Jacobus ◆ Venkataraman K

Life Science: Banting, Frederick ◆ Eijkman, Christian ◆ Elion, Gertrude ◆ Eysenek, Hans ◆ Fleming, Alexander ◆ Franklin, Rosalind ◆ Hopkins, Frederik ◆ Huxley, Thomas ◆ Jenner, Edward ◆ Koch, Robert ◆ Landsteiner, Karl ◆ Laveran, Alphonse ◆ Linnaeus, Carl ◆ Lister, Joseph ◆ Manson, Patrick ◆ McClintock, Barbara ◆ Mendel, Gregor ◆ Pasteur, Louis ◆ Perutz, Max ◆ Ross, Ronald ◆ Rao, Y Subba ◆ Sahni, Birbal ◆ Salk, Jonas ◆ Sircar, Mahendralal

2012	544 pp.	Paperback
978-81-7371-751-2		₹ 650.00

Raman and His Effect

G Venkataraman

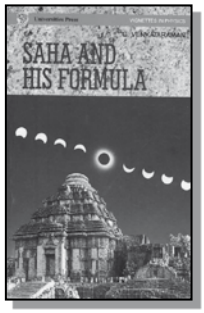


This book deals with the famous Scattering Effect discovered by Sir C. V. Raman. It gives us deep insights into the character of this famous scientist and vividly describes the circumstances surrounding the discovery.

1995	108 pp.	Paperback
978-81-7371-008-7		₹ 250.00

Saha and His Formula

G Venkataraman



A great leap forward in unravelling the mysteries of the Sun occurred way back in 1920 when Meghnad Saha made an important discovery that paved the way for a systematic study of stellar atmospheres in general. This book is about that great discovery and the man who made it.

Available in print and e-book formats.
For details, visit www.universitiespress.com.

1995	206 pp.	Paperback
978-81-7371-017-9		₹ 275.00

Wings of Fire: An Autobiography (Abridged, Special Student Edition with Exercises)

A P J Abdul Kalam
Former President of India

Arun Tiwari
Adjunct Professor, University of Hyderabad, Hyderabad, India

This simplified and abridged version now makes *Dr Kalam's* inspirational story accessible to students. A comprehensive glossary provides help in the understanding of technical terms. *This Special Student Edition includes exercises.*

2004	144 pp.	Paperback
978-81-7371-548-8		₹ 160.00

Wings of Fire: An Autobiography

A P J Abdul Kalam
Former President of India

Arun Tiwari
Adjunct Professor, University of Hyderabad,

Hyderabad, India

Avul Pakir Jainulabdeen Abdul Kalam, the son of a little-educated boat-owner in Rameswaram, Tamil Nadu, had an unparalleled career as a defence scientist, culminating in the highest civilian award of India, the *Bharat Ratna*. As chief of the country's defence research and development programme, Kalam demonstrated the great potential for dynamism and innovation that existed in seemingly moribund research establishments. This is the *story of Kalam's rise from obscurity and his personal and professional struggles, as well as the story of Agni, Prithvi, Akash, Trishul and Nag*—missiles that have become household names in India and have raised the nation to the level of a missile power of international reckoning. This is also the saga of independent India's struggle for technological self-sufficiency and defensive autonomy—a story as much about politics (domestic and international) as it is about science.

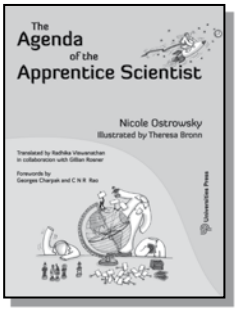
Available in print and e-book formats.
For details, visit www.universitiespress.com.

1999	212 pp.	Paperback
978-81-7371-146-6		₹ 350.00

General Interest

Agenda of the Apprentice Scientist, The

Nicole Ostrowsky
Professor Emeritus, University of Nice Sophia Antipolis, France



Here are *365 activities* to discover that science is a part of our daily life, that you can take part in it with pleasure, that it can be easy, sometimes surprising and funny, and always *accessible to everyone, from 7 to 107*. All you need to have is a curiosity about the world around you.

Throw yourself into this adventure across the sciences, go at your own pace, follow your fancy and don't necessarily stick to the days of the year. Keep in mind, however, that some activities take place over a couple of days—you will see this as you go. Set your imagination free, do or redo the experiments as you wish, and try and invent better ways to make them work. If you have problems, if you need a clearer explanation, or if you want to share your ideas, you can write to *Nicole.Ostrowsky@unice.fr* or visit *http://apprenticescientist.com*

But most importantly, don't hesitate to play, draw, cut, construct, write and think—there is no better way to learn than through this maxim:

Tell me and I'll forget,
Show me and I may remember,
Involve me and I'll understand.

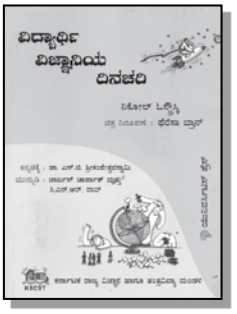
We recommend that you visit the link:
http://apprenticescientist.com/#/topics/3922325

Available in print and e-book formats.
For details, visit www.universitiespress.com.

2012	396 pp.	Paperback
978-81-7371-753-6		₹ 695.00

Agenda of the Apprentice Scientist, The (Kannada)

Nicole Ostrowsky
Professor Emeritus, University of Nice Sophia Antipolis, France



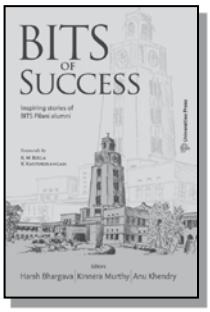
2012	396 pp.	Paperback
978-81-7371-921-9		₹ 595.00

BITS of Success

Harsh Bhargava
Professor, IBS Hyderabad

Kinnera Murthy
Former Dean, Administrative Staff College of India, Hyderabad, strategy consultant

Anu Khendry
Consultant and trainer, agile methodologies and project management



The creators of Hotmail, FoodKing, Bharat Forge, MapmyIndia, Onida, TheFind, VarshaJal and the Buddh International Circuit, to name a few, were all driven by passion—the passion to realise their dreams. They all built successful teams and created enduring brands. Further, the founders of the companies all had one more thing in common—they had graduated from BITS Pilani. These BITS alumni and many more have been successful entrepreneurs and trailblazers in varied fields. How did they do it? Did they score a bullseye the first time? If not, did they experience frustration—like many of us? How did they balance their work and personal lives? Did they have a success mantra? The book provides answers to these questions by taking the reader through the journeys of fifty individuals who realised their dreams through perseverance and determination, be it as entrepreneurs, technologists, scientists, teachers or artists. What is noteworthy is that all of them unanimously attribute their success to the exposure they received in BITS Pilani, highlighting the importance of educational institutes in shaping students' lives.

This book is an initiative of BITS Alumni Association, Hyderabad, to commemorate the golden jubilee of BITS Pilani (1964–2014).

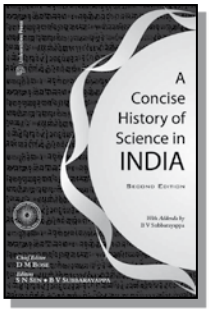
2014 | 208 pp. | Paperback
978-81-7371-915-8 | ₹ 350.00

Concise History of Science in India, A
(Second Edition)

D M Bose (Ed.)
Former Director, Bose Institute, Kolkata, India

S N Sen (Ed.)
Formerly Registrar, Indian Association for the Cultivation of Science, Kolkata, India

B V Subbarayappa (Ed.)
Formerly Executive Secretary, Indian National Science Academy, New Delhi; Project Coordinator and Member Secretary, National Commission for the History of Science in India; Director, Discovery of India Project, at Nehru Centre, Mumbai, India



India's contributions in the field of science have been very influential in the development of human civilisation. The decimal place value system and the Ayurvedic way of life are just two well-known legacies of this ancient culture. Yet there are only a few books which provide an unbiased and authentic view of this world. One reason for this is that the study of Indian science through the ages involves the complex integration of the knowledge of many languages and diverse scientific disciplines. Through the years, there has been growing interest in this study as an important aspect in understanding man's interaction with nature, his material life and cultural patterns. The Indian National Science Academy, through its History of Science Board (1958) and the National Commission for the Compilation of History of Sciences in India (1967) renamed in 1989 as the Indian National Commission for History of Science sought further means to stimulate this interest among universities and scholars. The result was the publication of *A Concise History of*

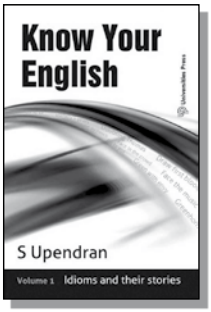
Science in India.

This book attempts to present a brief account of the development of science from early times to Independence, in one of the most ancient civilisations of the world. After nearly four decades since its publication, A Concise History of Science in India remains one of the most extensive and authentic account of Indian science through the ages. Yet further studies in the field have brought to light new material. This revised edition, taken up by B V Subbarayappa, one of the three original editors, seeks to integrate the new information with the knowledge already at hand.

2009	980 pp.	Paperback
978-81-7371-619-5		₹ 1,250.00

Know Your English Volume 1: Idioms and their stories

S Upendran
Professor, Department of Materials Development, Testing and Evaluation, English and Foreign Languages University, Hyderabad, India

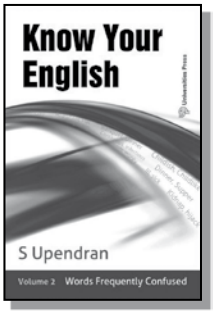


Idioms and their stories is the first of a four volume series, based on the popular column, *Know Your English*, which has been a regular feature in *The Hindu* since 1982. *Teachers, students, and those who are keen on honing their speaking and writing skills will find the series useful*. This volume contains a selection of more than 300 idioms, and each entry gives the meaning of the idiom, provides examples of its use, and wherever possible, traces its origin.

2011	216 pp.	Paperback
978-81-7371-729-1		₹ 250.00

Know Your English Volume 2: Words frequently confused

S Upendran
Professor, Department of Materials Development, Testing and Evaluation, English and Foreign Languages University, Hyderabad, India



Words Frequently Confused, the second volume in the four volume series, *Know Your English*, is based on S. Upendran's popular weekly column published in *The Hindu*. It contains a selection of about 480 pairs of words that are frequently confused. Each entry gives the meaning of the words and points out the difference between them. Examples are also provided showing how the words can be used in everyday contexts. Some of the entries also contain information about the pronunciation and the etymology (origin) of the word.

2012	416 pp.	Paperback
978-81-7371-730-7		₹ 425.00

Know Your English, Volume 3

FORTHCOMING

S Upendran

Should 'history sheeters' be put in jail for 'Eve teasing'? If I'm 'pushing 60', should I 'put in my papers'? Is it 'a university' or 'an university'? Do students 'by heart an answer' or do they 'learn an answer by heart'? Is it 'cope up with' or 'cope with'? Are 'top rankers' expected to have a 'good command over' the English language? Does one 'get down' or 'get off' at Nagpur? Is it possible to 'eat someone's head' and 'sit on it' too? How does one 'cut' a joke and give someone a 'nose cut'? These are just a few of the questions that the third volume in the Know Your English series will provide answers to. 'Grammar and Usage' will highlight many of the common errors that we Indians make when we speak or write in English. Every entry will provide a simple, but

detailed explanation of the mistakes we make. Anyone who is 16 years of age or older will find the book useful.

Know Your English, Volume 4

FORTHCOMING

S Upendran

The fourth and final volume of this very popular series deals with vocabulary and pronunciation. In particular, the meaning and pronunciation of individual words and everyday expressions, commonly used in India. In addition, numerous examples and the etymology of words have also been provided.

Science and Life (English)

A committee for Science and Life from the Delhi University has collectively authored the book.
Suman Dudeja, Aranya Bhattacherjee, J M Khurana, Binay Kumar, V K Ahluwalia, Rakesh Malik, Sushil Kumar, R K Gupta, Kulvinder Singh, J P Khurana (Convener)

Science and Life aims to build appreciation for science, develop the scientific temper and help the student understand where and how science is linked to daily life. The goal is to build on the high school experiences of students rather than simply encourage them to memorise more technical details. By studying this book, the student should:

- understand how science has brought about many changes in our daily lives,
- know how science helps in assessing energy requirements,
- learn how to analyse and interpret data,
- learn problem-solving skills, and
- appreciate interdisciplinary connections and associate them with emerging new directions.

The bottomline is to lay a common integrative foundation for all students to enable them to view scientific issues from multiple perspectives and make better-informed decisions of societal relevance.

Contents: **Unit I: Origin and Evolution of Life** ◆ **Origin and Evolution of Life** ◆ Origin of universe, Timeline of the Big Bang, Formation of the solar system and the origin of the earth, Origin of life on earth, Why is earth unique in the solar system when compared to other planets? Prebiotic chemistry, Why is water necessary for life?, Importance of carbon, The early atmosphere, Distribution of life in the universe. ◆ **Unit II: Water and Energy for Life** ◆ **Water** ◆ Hard and soft water, Water softening techniques, Potable and non-potable water, Desalination, Electrodialysis, Commonly used water purification techniques, Reverse osmosis, Filtration, Distillation, Heating, Purification of sewage water, Water resources, Water conservation, Agricultural use, Industrial uses, Domestic use, Use of wastewater, Rain water harvesting. ◆ **Energy** ◆ Different forms of energy, Mechanical energy, Chemical energy, Electrochemical energy, Electric energy, Thermal energy (heat energy), Electromagnetic energy, Energy resources, Non-renewable energy sources, Renewable energy sources, Conservation of energy. ◆ **Unit III: Nutrients and Household Chemicals** ◆ **Nutrients** ◆ Macronutrients, Why are carbohydrates essential?, Why are proteins essential?, Why do we need fat to survive?, Micronutrients, Nutritive value of foods, Nutritive value of Indian foods, Nutritive value of processed foods, Balanced diet and indian food pyramid, Recommended dietary allowance for Indians, Obesity and BMI, Fermentation technology in food science, Fermentation process, Common fermented food products, Fermented dairy products, Fermented non-dairy products, Probiotics. ◆ **Household Chemicals** ◆ Common household chemicals, Table salt, Acids and bases around us, Antiseptics and disinfectants, Bleaching and stain removal, Rusting (corrosion), Fire extinguishers. ◆ **Unit IV: Physical Parameters and Household Appliances** ◆ **Physical Parameters** ◆ Distance, Important events at different 'scales' of distance, Units, Prefix as a multiple of unit, Scale on a drawing, Techniques for measurement of distance, Mass, Use of the term 'mass' in science, Time, Unit and measurement of time, Temperature,

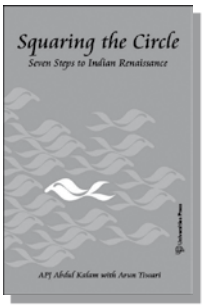
Measurement of temperature, Difference between heat and temperature, Variation of temperature on earth, Transfer of heat, Force, Units of force (newton, N), Four fundamental forces. ◆ **Household Appliances** ◆ Refrigerator, Earthen pot water evaporation coolers, Pumps, Resistive heater, Disposal of electrical/electronic devices, Harmful effects, e-waste treatment and disposal methods, Existing legislation (India), Rating of gadgets. ◆ **Unit V: Industry and Technology in Daily Life** ◆ **Contributions of Polymer Industry** ◆ Types of polymers, Plastics, Disadvantages of plastics, Rubber and tyres, Textile and clothing, Ceramics, Whiteware. ◆ **Pharmaceuticals and Cosmetics** ◆ Commonly used drugs in daily life, Antipyretics, Analgesics, Antibiotics, Antiseptics, Generic drugs, Herbal medicines, Drug abuse, Cosmetics, Constituents of cosmetics, Some popular types of cosmetics and their constituents. ◆ **Agrochemicals** ◆ Crop protectors, Pesticides, Soil supplements, Fertilisers, Hormones/growth agents, Environmental impact of pesticides/insecticides/ fungicides/ herbicides, Air pollution, Water pollution, Soil pollution, Organic farming. ◆ **Electronic Industry and Space Exploration** ◆ General introduction, IC (integrated circuits), Applications, LED (light emitting diode), Concerns about LEDs, Applications, LCD (liquid crystal display), Some facts and fiction, Applications, Solar cell, Some facts and fiction, The government initiative, Applications, Sensors, Applications, Audio–visual, Applications, Laser, Some concerns about lasers, Some facts and fiction, Applications, Space exploration—India's initiative, Applications.

2013 160 pp. Paperback
978-81-7371-901-1 ₹ 112.00

Squaring the Circle: Seven Steps to Indian Renaissance

APJ Abdul Kalam
Former President of India

Arun Tiwari
Adjunct Professor, University of Hyderabad, Hyderabad, India



Dr Kalam calls for an Indian Renaissance, which he describes in seven steps involving the common people of the land, and in particular, the youth. He urges people to arise out of servitude to a vested ruling class, awake from the slumber of a passive democracy, and advance to manifest our destiny of a developed nation. He recommends that by turning inward and listening to the voice of our conscience, we can live a virtuous life and thereby build a strong and secure India.

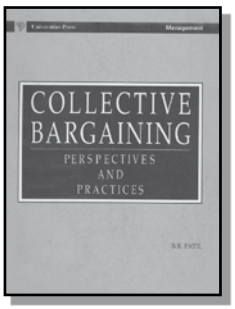
Contents: Prologue ◆ Introduction ◆ Acknowledgements ◆ The Story of Socrates ◆ We Are All One ◆ Truth and Reconciliation ◆ Beyond Narrow Domestic Walls ◆ A World View is a Lens ◆ Ignited Minds ◆ Know Thyself ◆ Social Enterprise ◆ Istikhara ◆ Good to Great ◆ Re-energizing Relations ◆ Strength respects Strength ◆ Work, Bread, Water and Salt for All ◆ Livable Planet ◆ Epilogue ◆ Index

2013 304 pp. Paperback
978-81-7371-891-5 ₹ 325.00

Management

Collective Bargaining

B R Patil



This book outlines the concept of collective

bargaining as it has developed in many industrial countries. It does not restrict itself to the development and present status of collective bargaining in the industrialised market economies alone, but analyses its development and practice in Indian industries too.

2014	564 pp.	Paperback
978-81-7371-688-1		₹ 675.00

Consumer Affairs

Sri Ram Khanna
Professor, Faculty of Commerce and Business,Delhi School of Economics Campus, University of Delhi, Delhi, India

Savita Hanspal
Reader, Department of Commerce, Kamala Nehru College, University of Delhi, Delhi, India

Sheetal Kapoor
Reader and Teacher-in-charge, Department of Commerce, Kamala Nehru College, Delhi, India

H K Awasthi
Advocate, Former Deputy General Manager (Law), MMTC Ltd., Delhi, India

The consumer movement is a collaborative effort to provide protection to consumers from the unfair dealings of the trade and industry. *Consumer Affairs* articulates important reading and reference material for consumers from every layer of society, thereby empowering people - individually and collectively - to exercise their rights and responsibilities consciously. This book provides comprehensive coverage of consumer concerns which have been recently brought into focus, and which are still evolving. It includes adiscussion of:

- Consumer rights and responsibilities
- The Consumer Protection Act, 1986
- The three-tier consumer complaint redressal procedure
- Redressal agencies
- Important cases as examples
- Product quality, standardisation and testing
- Advertising and sales promotion: social, ethical and legal aspects
- The Competition Act, 2002 with the latest amendments
- Sustainable development, green marketing and ethical consumerism

With increasing consumerism in a free-trade economy, there is an urgent need to create consumer awareness at the grassroots level, beginning with the student community. With this end in view, the University of Delhi has introduced an optional paper on consumer awareness for students of B. Com (Hons) and the new B.A. programme. This is the only comprehensive text book that covers the syllabus for this paper. The chapters are well-written and the language is simple and easy to comprehend. This book will also prove useful to consumers, especially those dealing with consumer issues in the government, in companies, and those pursuing the redressal of consumer complaints.

2007	352 pp.	Paperback
978-81-7371-581-5		₹ 450.00

E-Governance

Ashok Agarwal
Board of ACS Technologies Ltd; Chairman, Special Interest Group on e-Governance

Today, information and communications technologies are being used by governments to deliver services to citizens at convenient geographical locations. The objective is to make the services more transparent, improve their

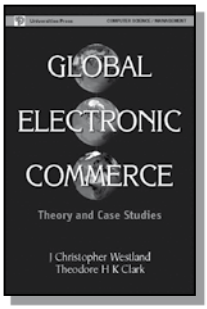
reach and reduce response time as well as cost. While some of these e-governance projects have been successful, there have been issues with the implementation and sustenance of many other projects. This book is a selection of case studies of a few of the on-going e-governance projects entered for the CSI–Nihilent e-Governance Awards 2005–2006. It is hoped that this compilation will help in sharing valuable information on successful models, evaluation of models and potential implementation issues that need to be addressed in large e-governance projects.

Contents: *Foreword* ◆ *Preface* ◆ Evaluating E-Government ◆ Effective Public Service Delivery and E-Governance: Who Drives Whom ◆ E-SAGU: The Next Generation IT-based Query-less, Cost-Effective and Personalized Agro-Advisory System ◆ BHOOMI: Online delivery of Record of Rights, Tenancy and Crops to farmers in Karnataka, India ◆ e-DHARA ◆ KHAJANE: The Comprehensive Online Treasury Computerisation Project ◆ BangaloreOne: Integrated Citizen Service Centre ◆ National Portal of India (http://india.gov.in) ◆ PIMS: A Self-Sustaining e-Governance Project in Government ◆ Satellite-Image-Based Water and Land Development Plan ◆ Block Community Portals of Community Information Centres in the North-Eastern States ◆ Centralised Allotment Process (CAPNIC) ◆ Community Information Centres ◆ Computerised Lok Ayukta Information Management System (CLAIMS) ◆ Complaints Registration and Monitoring System (CRAMS) ◆ DC*SUITE ◆ 'Dev-bhoomi'—Land Records Computerisation in Uttaranchal: A G2C and G2G e-Governance Application ◆ Dharitree: The Web-Technology-Based Total Land Records Management System of Government of Assam ◆ e-DISHA – Electronic Delivery of Integrated Services of Haryana to All ◆ e-KOSH: Online Computerisation of Treasuries, Chhattisgarh ◆ e-Post: Department of Posts, Government of India ◆ Implementation of e-procurement in the Government of Andhra Pradesh: A Case Study ◆ e-SAMPARK: A Multi-Service Single Window operations Project ◆ e-SUVIDHA ◆ HALRIS # HARIS Bridge: Dynamic Integration of Property Registration and Land Records Administration in Haryana ◆ ICT solution for NREGA Implemented in Andhra Pradesh ◆ Instant Money Order (iMO) ◆ Mobile Applications in Irrigation Department for Reservoir Level Monitoring ◆ MSEB's Secured e-Tendering Solution ◆ NISANI: National Identity Cards Scheme ◆ Pension Case Status Online ◆ Open-Source Initiatives ◆ Postal Life Insurance ◆ Prioritized Project-Monitoring System (PPMS) ◆ Rojgarwahini: Portal of the Directorate of Employment and Self Employment, Government of Maharashtra ◆ SMART-Move ◆ Spandan – File, Grievance and Press Reports Monitoring System ◆ Service and Payroll Administrative Repository for Kerala (SPARK) ◆ Status Information Management System by NIC: A G2G Application ◆ SWIFT: State-Wide Information on Financial Transactions ◆ Portnet: An e-Governance Project for Rural Masses ◆ Treasury Information Management (TRIM)

2008	452 pp.	Paperback
978-81-7371-596-9		₹ 695.00

Global Electronic Commerce: Theory and Case Studies (MIT Press)

J Christopher Westland & Theodore H K Clark

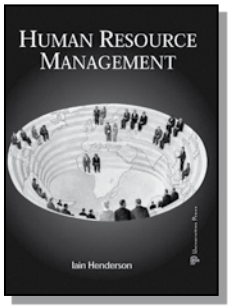


Electronic commerce has spurred far-reaching changes in business, on multiple fronts, using many technologies. This book provides a deep, practical understanding of these technologies and their use in e-commerce. Unlike other books on e-commerce, it does not concentrate solely on the Internet. Instead, it suggests that the Internet is only a bridge technology, attractive because of its low cost and global reach, but unattractive because of its slow speed and poor user interface.

2001	608 pp.	Paperback
978-81-7371-394-1		₹ 775.00

Human Resource Management

Iain Henderson
Senior Teaching Fellow, Edinburgh Business School, Heriot-Watt University, Edinburgh, UK



Human Resource Management is designed for the managers of tomorrow who are increasingly required to undertake aspects of HRM as part of their day-to-day duties. It is an ideal text for MBA students taking a first HRM course or module and Masters students on general business and management programmes. Comprehensive but extremely accessible, this textbook draws on the latest academic research and provides students with everything they need to know about HR theory and practice. Using case studies and practical examples, it places HR firmly in a managerial context giving students the real-world perspective needed to succeed in people management. In this innovative book, Henderson demonstrates an understanding of busy MBA students' needs and time limitations, avoiding too much emphasis on historical detail and providing plenty of support material, including tutor and student websites.

Contents: People Management: Personnel Management and Human Resource Management ◆ Looking Ahead: HRM and Strategy ◆ Designing Work: Organising Work and People ◆ Managing the Human Resource Flow ◆ Developing People ◆ Employee Relations ◆ Rewarding People ◆ HRM and Competency ◆ Managing Diversity ◆ People Issues in Mergers and Acquisitions ◆ HRM in International Companies ◆ *Review*

2009	268 pp.	Paperback
978-81-7371-650-8		₹ 475.00

Industrial Psychology

Dipak Kumar Bhattacharyya
Professor, Xavier Institute of Management, Bhubaneswar, India

Sutapa Bhattacharya
Psychologist, Bhubaneswar, India

It is a comprehensive textbook for engineering and management students. The subject is covered in relation to the *specific areas of syllabus* as well as emerging thoughts in the field. *Industrial Psychology* or IP is a scientific study of factors affecting employees or workers. It comprises of work and time study, motivation and leadership. It also encompasses highly critical human resource management functions like recruitment, training and development. The modern challenges of managing diversity, change, technology and innovation can be effectively met only with training in IP. The book covers all these aspects in a lucid manner with a student-friendly approach.

Contents: Introduction to Industrial Psychology ◆ Scientific Management and Industrial Psychology ◆ Work Study ◆ Behavioural Theories and Industrial ◆ Psychology ◆ Motivation and Job Satisfaction ◆ Work Environment: Management of Fatigue and Stress ◆ Organizational Culture and Organizational Development ◆ Theories of Leadership ◆ Group Dynamics ◆ Job Analysis and Job Design ◆ Recruitment and Selection ◆ Psychological Testing ◆ Performance Management ◆ Training and Development

2012	300 pp.	Paperback
978-81-7371-784-0		₹ 350.00

International Finance
(Second Edition)

G Shailaja
Associate Professor, Osmania University, Hyderabad

It is a textbook for management students and a reference for practicing managers. In this revised edition, all the chapters have been updated.

New chapters on global strategic alliances, international taxation, international project management and currency crises have been added. The approach has been to blend theory with practical aspects of decision-making. Latest policy changes in the Indian scenario have been included. Salient features of the book are:

- Learning objectives, keypoints and glossary are provided for each chapter
- Illustrative examples and solved problems will improve the learners' orientation for numerical work
- Self-assessment questions of different types like MCQs, fill in the blanks and descriptive answers
- Interesting case studies that will sharpen analytical skills

Contents: Introduction to International Finance ◆ Financial Markets ◆ Foreign Exchange Market ◆ Foreign Exchange Quotes ◆ Currency Derivatives ◆ Eurocurrency Market ◆ Sources of Finance ◆ International Financing Agencies ◆ Theories of Exchange Rates ◆ Currency Convertibility ◆ Evolution of the International Financial System ◆ Balance of Payments ◆ Types of Foreign Exchange Exposure ◆ Hedging Currency Risk ◆ Capital Budgeting for Overseas Investment ◆ Cross-border Mergers and Acquisitions ◆ International Portfolio Investment ◆ Documentation in International Trade ◆ Financing of International Trade ◆ International Accounting ◆ Transfer Pricing ◆ Multinational Tax Planning ◆ International Banking ◆ Multinational Corporations and Corporate Governance ◆ Financial Crises

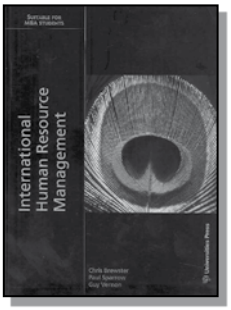
2011	528 pp.	Paperback
978-81-7371-747-5		₹ 450.00

International Human Resource Management

Chris Brewster
Professor, International HRM, Henley Management College, UK

Paul Sparrow
Director, Centre for Performance-Led HR
Professor, International HRM, Lancaster University Management School, UK

Guy Vernon
Lecturer, Human Resource Management, Southampton University, UK



This new and substantially revised second edition of *International Human Resource Management* explores both comparative and international HRM, discussing leading practices and the controversies that surround them. Developed fro the authors' extensive experience in the field, it presents a comprehensive treatment of the subject from a truly global perspective, including material from the Pacific Rim, China and India. Chapters are grounded in academic research and include case studies, activities and a range of other feature to test and reinforce students' understanding.

"This excellent book will prove to be most valuable for postgraduate and undergraduate HRM students. It is very comprehensive in compass and coverage while being interesting and fluently written by a group of internationally renowned scholars."

Professor Michael Poole Cardiff Business School, UK, and editor of the International Journal of Human Resource Management

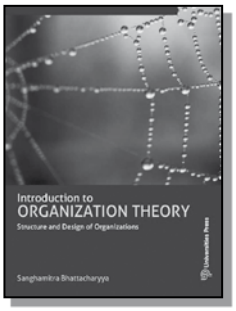
Contents: *List of Tables* ◆ *List of Figures* ◆ *Acknowledgements* ◆ International Human Resource Management: An Introduction ◆ PART ONE: NATIONAL CULTURES: The Impact of National Culture ◆ Culture and Organisational Life ◆ PART TWO: COMPARATIVE HRM: Comparative HRM: Theory and Practice ◆ Comparative HRM: The Role of the HR Department ◆ Comparative HRM: Recruitment and Selection ◆ Comparative HRM: Reward ◆ Comparative HRM: Training and Development ◆ Comparative HRM: Flexibility and Work–Life Balance ◆ Comparative HRM: Employee Relations and Communications ◆ PART THREE: INTERNATIONAL HRM: International HRM: Theory and Practice ◆ Managing International Working ◆ Managing Diversity in International Working ◆ PART FOUR: NEW DEVELOPMENTS AND THE ROLE OF THE HR FUNCTION: New

Developments in International HRM ◆ Managing International HRM ◆ *Index*

2008	344 pp.	Paperback
978-81-7371-615-7		₹ 495.00

Introduction to Organization Theory

Sanghamitra Bhattacharyya
Feedback Foundation



Introduction to Organization Theory is a textbook for students and scholars of business management, aspiring to be practicing managers in the corporate world. It introduces them to the concept of organization theory, structure and design. The focus is on the structure and design of organizations, the theories underlying the design of structures, the effectiveness of organizational design in ensuring organizational survival and growth, and the management of organizational restructuring and change to prevent corporate decline and failure. Most standard textbooks on organizational theory currently in use are by foreign authors, and cite predominantly US or European examples. To address this lacuna, at least two Indian case studies have been discussed in each chapter and numerous examples of Indian organizations and their experiences have been included to explain concepts and theories.

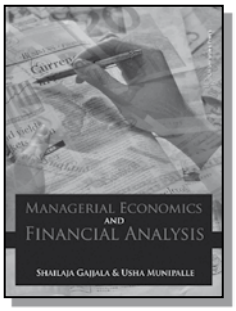
Contents: Chapter 1: Understanding Organizations Organizational Insight ◆ Chapter 2: Organizational Effectiveness Organizational Insight ◆ Chapter 3: Organization Structure Organizational Insight ◆ Chapter 4: Organizational Strategy Organizational Insight ◆ Chapter 5: Organizational Environment Organizational Insight ◆ Chapter 6: Technology in Organizations Organizational Insight ◆ Chapter 7: Organizational Culture Organizational Insight ◆ Chapter 8: Organizational Failure Organizational Insight ◆ Chapter 9: Managing Organizational Change Organizational Insight ◆ *Chapter Summary Review Questions ◆ Project Assignment Case Illustration: Downsizing in a manufacturing organization Critical enquiry ◆ References ◆ Index*

2011	208 pp.	Paperback
978-81-7371-737-6		₹ 275.00

Managerial Economics and Financial Analysis

Shailaja Gajjala
Professor, Department of Business Management, Osmania University, Hyderabad

Usha Munipalle
Professor, Department of Commerce, Osmania University, Hyderabad



Economics is the simple logic we apply for making decisions every day, be they purchases or investments. However, any concept or theory can be made complicated by the use of unnecessary jargon. *Managerial Economics and Financial Analysis* aims to cut through this barrier and present information in a logical and straightforward manner.

This book covers three important areas in the field of Finance: Managerial Economics, Financial Accounting and Financial Management. Designed to meet the undergraduate course requirements of engineering students, this book aims to present the main concepts and theories in a simple and lucid style. It includes many worked out examples and problems and provides interesting snippets of information relating to the current scenario in India.

Salient features:

- Central points presented in easy-to-remember bullet form

- Worked out examples progress from simple to complex
- Line drawings included to enhance understanding and for quick reference
- Key terms defined at the end of every chapter
- Comprehensive practice questions and assignments (with answers) provided for every chapter
- Neat, clutter-free layout to improve readability

Contents: Introduction to Managerial Economics ◆ Demand Analysis ◆ Demand Elasticity ◆ Demand Forecasting ◆ Production Analysis ◆ Cost Analysis ◆ Introduction to Markets and Managerial Theories of the Firm ◆ Pricing Policies and Practices ◆ Types of Business Organizations ◆ Financial Accounting ◆ Accounting Concepts and Recording of Transactions ◆ Ledger and Trial Balance ◆ Final Accounts ◆ Ratio Analysis ◆ Funds Flow Statement ◆ Capital Budgeting ◆ Sources of Finance ◆ *Appendix I* ◆ *Appendix II* ◆ *Answer Key* ◆ *Index*

2012	376 pp.	Paperback
978-81-7371-774-1		₹ 350.00

Marketing Research

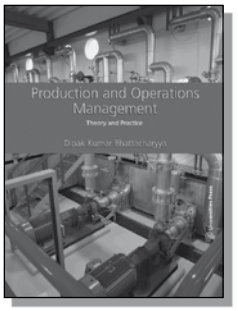
Debashis Pati

Marketing and sales is all about 'logical' decision making and implementation. And Marketing Research is the aid to analyze, know, evaluate, and decide. It is an essential link between the marketer and the marketplace, and a basic part of any marketing and sales process. Marketing and sales without marketing research is 'gut feeling' and this is best avoided in order to succeed. This book attempts to blend marketing research into marketing and sales. The author wishes to create an ideal perspective for market research among marketers, advertisers, sales professionals, consultants and, above all, market researchers. It is a necessary textbook for all management students, a handy reference for marketing managers, a useful guide for professionals in market research and advertising agencies, and an essential tool for management trainers.

2002	720 pp.	Paperback
978-81-7371-415-3		₹ 725.00

Production and Operations Management: Theory and Practice

Dipak Kumar Bhattacharyya
Professor, Xavier Institute of Management, Bhubaneswar



Production and Operations Management is a core subject for MBA students; it is compulsory reading for them. This book conforms to the syllabus requirements of most national and international MBA/PGDBM programmes.

Special features:

- It is written in lucid language
- There is limited use of technical jargon
- Case studies have been added
- Explanation of theory with practices from industry given as examples
- Numerical examples have been included
- Discussion of contemporary areas have been added
- Adequate examples and illustrations have been provided
- General and Critical Review Questions have been appended at the end of each chapter. Emerging areas discussed include: Ethical Issues in Production and Operations, Six Sigma Practices, Production and Operations Management Research, and International Production and Operations Management.

Contents: Chapter 1: Introduction to Production and Operations Management ◆ Introduction ◆

Definition and Concepts ◆ Differences between Manufacturing and Services ◆ Historical Process of Development of POM Functions ◆ Models for Production/Operations Systems ◆ The Role of the Operations Manager ◆ Manufacturing Plant ◆ Recent Trends in Production and Operations Management Functions ◆ Production and Operations Strategy ◆ Chapter 2: Production Planning and Control ◆ Introduction ◆ Definition and Concepts ◆ Steps in Production Planning ◆ Aggregate Planning ◆ Capacity and Material Requirement Planning ◆ Materials Requirement Planning ◆ Manufacturing Resource Planning (MRP-II) ◆ Forecasting ◆ Decision Making ◆ Management Information Systems and Decision Support Systems ◆ Scenario Planning for Production and Operations Management ◆ Limitations of Planning ◆ Production-related Forms ◆ Chapter 3: New Product Planning and Development ◆ Introduction ◆ Steps for New Product Development ◆ New Service Development Design ◆ New Product Development or Selection Process ◆ Product/Service Life Cycle Analysis ◆ Process Selection ◆ Chapter 4: Facilities Planning, Layout and Location Analysis ◆ Plant Layout ◆ Determinants of Layout ◆ Types of Layout ◆ Flowcharting ◆ Some more Layouts ◆ Analysis and Selection of Layouts ◆ Steps involved in Facilities Planning ◆ Tools for Facilities Planning ◆ Plant Location ◆ Location Analysis ◆ Chapter 5: Scheduling and Sequencing of Production ◆ Introduction ◆ Components of Production Scheduling ◆ History of Production Scheduling ◆ Scheduling of Service Operations ◆ Tools and Techniques for Scheduling ◆ Sequencing ◆ Johnson's Rule for Scheduling ◆ Gantt Charts ◆ More Scheduling Tools and Techniques ◆ Queuing Theory ◆ Chapter 6: Work Study and Work Measurement ◆ Introduction ◆ Job information ◆ Job Analysis ◆ Methods of Analysis ◆ Work Study ◆ Method Study ◆ Work Measurement ◆ Time Study ◆ Other Techniques of Work Measurement ◆ Concept and Definition of Ergonomics ◆ Value Analysis ◆ Work Sampling ◆ Work Simplification ◆ Chapter 7: Network Analysis and Project Management ◆ Introduction ◆ Different Forms of Network Analysis ◆ Benefits of Network Analysis ◆ Defects of Network Analysis ◆ Definition and Concept of Float ◆ PERT/CPM Networks ◆ Network Diagram Symbols ◆ Programme Evaluation and Review Technique (PERT) ◆ Critical Path Calculation ◆ Crashing of a Project ◆ Free and Independent Float ◆ Definition of a Project ◆ Project Life Cycle ◆ Project Management ◆ Duties and Responsibilities of a Project Manager ◆ Chapter 8: Maintenance Management ◆ Introduction ◆ Different Types of Maintenance ◆ Total Productive Maintenance (TPM) and Overall Equipment Effectiveness (OEE) ◆ TPM and TQM ◆ Maintenance Management Systems and Strategies ◆ Organization and Functions of Maintenance ◆ Elements of Effective Maintenance Management ◆ Best Practice Maintenance Management ◆ Models of Maintenance Organization Structure ◆ Roles and Responsibilities of Maintenance Managers ◆ Need for Maintenance Policy ◆ Spare Parts Planning and Control In Maintenance ◆ Simulation ◆ Replacement Theory ◆ Lean Maintenance System ◆ Chapter 9: Quality Management Practices ◆ Introduction ◆ Importance of Quality in an Organization ◆ Quality to Quality Management ◆ Definition of Quality Management Principles ◆ ISO Standards ◆ Quality Gurus and their Contribution to TQM Practices ◆ Teams and Teamwork ◆ Employee Empowerment ◆ Quality of Work-life (QWL) ◆ Six Sigma Practices ◆ Innovation and Creativity ◆ Quality Circles and Total Employee Involvement ◆ Quality Function Deployment (QFD) ◆ Statistical Process Control (SPC) ◆ Data Collection ◆ Chapter 10: Six Sigma in Production and Operations Management ◆ Introduction ◆ Definitions and Concepts ◆ Introduction of Six Sigma in Organizations ◆ Steps for Implementation ◆ Calculating Sigma level Quality ◆ Six Sigma and Organizational Culture ◆ Six Sigma and Quick Response Manufacturing (QRM) ◆ Six Sigma and Lean Practices ◆ Six Sigma through Strategic HR Practices ◆ Chapter 11: BPR, TQM, Cross-cultural Aspects and Models of Excellence ◆ Introduction ◆ Business Process Reengineering – Concepts and Definitions ◆ Impact of BPR on Organizations ◆ TQM and the Culture of Quality ◆ Cross-cultural Influence and Technology ◆ Proactive Technological Culture for POM ◆ Best Practice Models for Excellence in POM functions ◆ Organizational Change through Six Sigma ◆ Six Sigma: Introduction in Organizations ◆ Lean Practices to Achieve Organizational Excellence ◆ Quick Response Manufacturing (QRM) ◆ Toyota Production System (TPS) ◆ Chapter 12: Human Resources Management, Strategic Dimensions and POM ◆ Introduction ◆ History of HRM ◆ Definitions and Concepts of HRM ◆ HRM and Strategy ◆ HR Strategy Factors ◆ Different Schools of Thought and HRM ◆ Human Resource Management as a Process ◆ HRM as a System ◆ Human Resource Management Techniques ◆ HRM Functions ◆ Roles, duties and responsibilities of a Human Resource Manager ◆ HR Manager's Role: Clarifications ◆ HR Organizational Structure ◆ Human Resource Development (HRD)

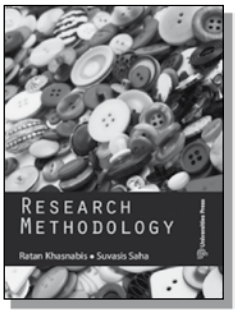
Concepts ◆ Chapter 13: Productivity, Incentives and POM ◆ Introduction ◆ Definition of Productivity ◆ Key Drivers or the Determinants of Productivity Growth ◆ Factors to improve Productivity ◆ Common Misconceptions about Productivity ◆ Productivity Measurement ◆ Productivity Measurements – Ratio Problem ◆ Productivity and Quality ◆ Role of Trade Unions in Productivity Improvement ◆ Productivity-linked Incentive Determination ◆ Economic Value Added (EVA) ◆ Organizational Sickness and Productivity ◆ Chapter 14: Materials Management and Inventory Control ◆ Introduction ◆ Definition and Concepts of Materials Management ◆ Selective Inventory Control ◆ Selective Inventory Control through Various Techniques ◆ Economic Ordering Quantity ◆ Supply Chain Management and Inventory Control ◆ Chapter 15: Supply Chain Management ◆ Introduction ◆ Definitions and Concepts ◆ Process of SCM ◆ Selection of Channel Strategy ◆ Core Operations Capabilities ◆ SCM Decisions ◆ SCM Models ◆ Chapter 16: Ethics, Corporate Social Responsibility and Environment Management in Production and Operations Management ◆ Introduction ◆ Definition and Concepts ◆ The Code of Ethics in Manufacturing ◆ Environmental Issues in Production and Operations ◆ Pollution Concepts and Definition ◆ Environment Management and ISO Standards ◆ Corporate Social Responsibility and Environmental Issues ◆ Workplace Environment ◆ Fatigue at the Workplace ◆ Legal Provisions for Occupational Health and Safety ◆ Managing Stress in Organizations ◆ Chapter 17: Production and Operations Management Research ◆ Introduction ◆ Different Approaches to POM Research ◆ Linear Programming (LP) ◆ Network Analysis ◆ Transportation and Assignment Techniques ◆ Game Theory ◆ Chapter 18; International Production and Operations Management ◆ Introduction ◆ Impact of Globalization ◆ Advantages and Disadvantages of the Internationalization of POM ◆ International POM Strategy ◆ Network Strategy of International POM ◆ Outsourcing ◆ *Index*

2012 | 616 pp. | Paperback
978-81-7371-776-5 | ₹ 550.00

Research Methodology NEW

Ratan Khasnabis
Retired Professor, Department of Business Management, University of Calcutta

Suvasis Saha
Professor, Department of Business Management, University of Calcutta



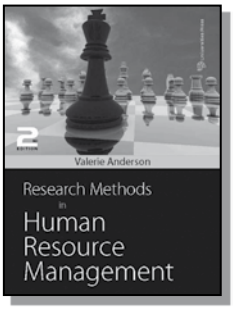
Research Methodology addresses empirical research issues with a focus on research design, the problems involved in constructing an appropriate research design and the means to overcome these problems. Data, its sources, methods employed to obtain data, experimental techniques employed, types of errors that may creep in, how to measure, check and control errors are all addressed. Once the data is collected, methods to analyse the data, present them as a cogent report and the limitations of research are dealt with. A detailed case study illustrates all the concepts explained in the book and the chapter-wise assignments will definitely help the student to understand the basic issues of market research. The book is primarily intended to serve as a textbook for the students of Management at the undergraduate and postgraduate levels.

Contents: Introduction ◆ Research Design ◆ Sources of Data ◆ Maintaining Data Quality Under Various Settings ◆ Experimental Techniques ◆ The Questionnaire Method ◆ Errors in Data: Measurement Error ◆ Measurement and Scaling Techniques ◆ Methods of Data Collection ◆ Tools of Processing and Analysis of Data ◆ Sampling, Sampling Errors and Testing of Hypotheses ◆ Data, Analysis and Report Writing ◆ Research Administration ◆ An Illustration of Research Methodology ◆ *Appendices* ◆ *Index*

2015 | 320 pp. | Paperback
978 81 7371 952 3 | ₹ 295.00

Research Methods in Human Resource Management

Valerie Anderson
Principal lecturer, HRM, Portsmouth Business School, UK



This book addresses the needs of HRM and CIPD students writing a management report or dissertation, providing both theoretical frameworks and practical guidance. Providing an accessible guide to the planning and execution of HRM research projects, this text seeks to develop the knowledge and skills of first-time researchers for effective research into HRM issues in organisations.

Contents: The nature of research in HR, and how to use this book ◆ First stages in the HR project ◆ Ethics and HR research ◆ Reviewing and evaluating existing knowledge ◆ Approaches to gathering data in HR research ◆ Finding and using documentary and organisational evidence ◆ Collecting and recording qualitative data ◆ Analysing qualitative data ◆ Collecting and recording quantitative data ◆ Analysing quantitative data and formulating conclusions ◆ Communicating your research ◆ Final reflections

2011 385 pp. Paperback
978-81-7371-733-8 ₹ 595.00

UNIVERSITIES PRESS e-BOOKS

978-81-7371-797-0	Adolescence	Usha R Krishna & Vinita Salvi
978-81-7371-785-7	Advances In Cloud Computing	Anirban Basu, Rajiv Ranjan & Rajkumar Buyya (Eds)
978-81-7371-841-0	Advances in Medical Plants	Janardhan K Reddy
978-81-7371-925-7	Agenda of the Apprentice Scientist	Nicole Ostrowsky
978-81-7371-837-3	Amphibians of Peninsular India	R J Ranjit Daniels
978-81-7371-932-5	Ananthanarayanan & Paniker's Textbook of Microbiology (Ninth Edition)	Arti Kapil (Ed.)
978-81-7371-883-0	Antenatal and Intrapartum Surveillance	Sir Sabaratnam Arulkumaran, Jaydeep Tank, Rohana Haththoutuwa & Parikshit Tank (Eds)
978-81-7371-970-7	Arithmetic and Algebra: Numbers and the Beginnings of Algebra	Shailesh A Shirali
978-81-7371-765-9	Arithmetic and Algebra: The Challenge and Thrill	Shailesh A Shirali
978-81-7371-869-4	Astrophysics of the Solar System	K D Abhyankar
978-81-7371-871-7	Astrophysics: Stars and Galaxies	K D Abhyankar
978-81-7371-898-4	At the Speed of Light (V.I.P.)	G Venkataraman
978-81-7371-896-0	Benign Breast Diseases: A Surgical Approach	Uma Krishnaswamy
978-81-7371-859-5	Bhabha and his Magnificient Obsessions	G Venkataraman
978-81-7371-868-7	Birds Beyond Watching	Abdul Jamil Urfi
978-81-7371-894-6	Birds in our Lives	Ashish Kothari
978-81-7371-852-6	Bose and his Statistics	G Venkataraman
978-81-7371-807-6	Brief History of Rocketry, A	P V Manoranjan Rao & P Radhakrishnan
978-81-7371-833-5	Butterflies of Peninsular India	Krushnamegh Kunte
978-81-7371-863-2	Can Stars Find Peace	G Srinivasan
978-81-7371-906-6	Cardiology for MRCP: A Socratic Approach	Wong & Chong
978-81-7371-949-3	Cell Biology	Channarayappa
978-81-7371-875-5	Chandrasekhar and his Limits	G Venkataraman
978-81-7371-813-7	Compendium of E-governance	Piyush Gupta
978-81-7371-836-6	Computer, Internet and Multimedia Dictionary	Surendra Verma
978-81-7371-964-6	Concepts in Biotechnology (Second Edition)	D Balasubramanian, C F A Bryce, K Dharmalingam, J Green & Kunthala Jayaraman (Eds)
978-81-7371-895-3	Controversial Drug Plants	Vasudevan Nair
978-81-7371-966-0	Cultivation of Spice Crops	A A Farooqi, B S Sreeramu & K N Srinivasappa
978-81-7371-853-3	Data Mining Techniques	Arun K Pujari
978-81-7371-968-4	Digital Communications and Signal Processing (Second Edition)	K Vasudevan

978-81-7371-808-3	Dimensions of Environmental and Ecological Economics	Amita Kumari Choudhury & Nirmal Chandra Sahu (Eds)
978-81-7371-866-3	Disaster Management	Harsh K Gupta
978-81-7371-865-6	Disaster Management: Global Challenges and Local Solutions	Rajib Shaw & R R Krishnamurthy
978-81-7371-817-5	Elements of Psychology and Mental Hygiene	Aruna Balachandra
978-81-7371-976-9	Encyclopedia of Classical Indian Sciences	Helaine Selin & Roddam Narasimha
978-81-7371-800-7	Endometriosis	N D Motashaw
978-81-7371-963-9	Engineering Geology	Vasudev Kanithi
978-81-7371-867-0	Environmental Science and Engineering (Second Edition)	Aloka Debi
978-81-7371-950-9	Experimental Pharmacology (Second Edition)	M C Prabhakar
978-81-7371-987-5	Evolution of Scientific Medicine	P Kutumbiah
978-81-7371-851-9	Field Days	A J T Johnsingh
978-81-7371-846-5	Forensic Medicine	P V Guharaj & M R Chandran
978-81-7371-908-0	General Surgery for Dental Students	Sukumar A
978-81-7371-893-9	Group Theory: Selected Problems	B Sury
978-81-7371-799-4	Gynecological Urology	Usha B Saraiya
978-81-7371-849-6	Hot Story, A	G Venkataraman
978-81-7371-792-5	Indian Medicinal Plants Volume - 1	P K Warrier, V P K Nambiar & C Ramankutty
978-81-7371-793-2	Indian Medicinal Plants Volume - 2	P K Warrier, V P K Nambiar & C Ramankutty
978-81-7371-794-9	Indian Medicinal Plants Volume - 3	P K Warrier, V P K Nambiar & C Ramankutty
978-81-7371-795-6	Indian Medicinal Plants Volume - 4	P K Warrier, V P K Nambiar & C Ramankutty
978-81-7371-796-3	Indian Medicinal Plants Volume - 5	P K Warrier, V P K Nambiar & C Ramankutty
978-81-7371-819-9	International Finance	G Shailaja
978-81-7371-861-8	Introduction to Ayurveda, An	M S Valiathan
978-81-7371-992-9	Introduction to Mechanics (Second Edition)	Mahendra Verma
978-81-7371-848-9	Introduction to Soil Reinforcement and Geosynthetics	G L Sivakumar Babu
978-81-7371-802-1	Low Birth Weight Baby, The	R L Tambyraja
978-81-7371-814-4	Mammals of South Asia: Volume 1	A J T Johnsingh & Nima Manjrekar (Eds)
978-81-7371-955-4	Mammals of South Asia: Volume 2	A J T Johnsingh & Nima Manjrekar (Eds)
978-81-7371-873-1	Management of Labour, The (Third Edition)	Sir Sabaratnam Arulkumaran, Gita Arjun & Leonie Penna
978-81-7371-845-8	Manual of Tropical Housing and Building	O H Koenigsberger, T G Ingersoll, Alan Mayhew & S V Szokolay
978-81-7371-878-6	Many Phases of Matter, The	G Venkataraman
978-81-7371-831-1	Marine Mammals of India	Kumaran Sathasivam
978-81-7371-905-9	Medicine at a Glance	Vasan & Sudha
978-81-7371-806-9	Menopause	Usha R Krishna & Duru Shah
978-81-7371-816-8	Mudaliar and Menon's Clinical Obstetrics	Sarala Gopalan & Vanita Jain
978-81-7371-983-7	Number Theory	Shailesh Shirali & C S Yogananda
978-81-7371-907-3	Obstetrics Medicine	Ogip
978-81-7371-995-0	Operating Systems	Ashok Kumar Sharma

978-81-7371-962-2	Pavement Evaluation and Maintenance Management System	R Srinivasa Kumar
978-81-7371-918-9	Pediatric Endocrine Disorders (Third Edition)	Meena P Desai, P S N Menon & Vijayalakshmi Bhatia
978-81-7371-801-4	Perinatal Asphyxia	S Arulkumaran
978-81-7371-974-5	Plant Biotechnology: Methods in Tissue Culture and Gene Transfer	R Keshavachandran & K V Peter (Eds)
978-81-7371-973-8	Powder Metallurgy: Science, Technology and Materials	Anish Upadhyaya & G S Upadhyaya
978-81-7371-975-2	Practical Biotechnology: Methods and Protocols	S Janarthanan & S Vincent
978-81-7371-911-0	Practical Guide to Obstetrics, A: Cost-effective, Evidence-based and Safe Care	Gita Arjun, Lakshmi Seshadri & Uma Ram (Eds)
978-81-7371-804-5	Practical Infertility Management	Duru Shah
978-81-7371-805-2	Practical Neonatal Care	Lalitha Krishnan
978-81-7371-798-7	Pregnancy Induced Hypertension	Harshalal R Seneviratne
978-81-7371-969-1	Primer on Logarithms, A	Shailesh A Shirali
978-81-7371-967-7	Primer on Number Sequences, A	Shailesh A Shirali
978-81-7371-972-1	Probability and Statistics for Science and Engineering	G Shanker Rao
978-81-7371-857-1	Quantum Revolution I: The Breakthrough	G Venkataraman
978-81-7371-876-2	Quantum Revolution II: QED: The Jewel of Physics	G Venkataraman
978-81-7371-899-1	Raman and his Effect (V.I.P.)	G Venkataraman
978-81-7371-834-2	Remote Sensing and Its Applications	L R A Narayana
978-81-7371-860-1	Saha and his Formula	G Venkataraman
978-81-7371-847-2	Science 366: A Chronicle of Science & Technology	Biman Basu
978-81-7371-842-7	Solid State Microelectronic and Optoelectronic Devices	Angsuman Sarkar
978-81-7371-812-0	Spiders of India	P A Sebastian
978-81-7371-910-3	Squaring the Circle	A P J Abdul Kalam & Arun Tiwari
978-81-7371-843-4	Statistical Mechanics: An Elementary Outline (Revised Edition)	Avijit Lahiri
978-81-7371-835-9	Story of our Food, The	K T Achaya
978-81-7371-882-3	Textbook of Basic and Clinical Immunology	Sudha Gangal & Shubhangi Sontakke
978-81-7371-815-1	Textbook of Clinical Pharmacy Practice (Second Edition)	G Parthasarathi, Karin Nyfort-Hansen & Milap C Nahata
978-81-7371-965-3	Textbook of Highway Engineering	R Srinivasa Kumar
978-81-250-5034-6	Textbook of Medical Parasitology (Second Edition)	R Panjarathinam
978-81-7371-809-0	Textbook of Medicine	R S Vasan
978-81-7371-838-0	Textbook of Pharmacognosy	Ramachandran
978-81-7371-856-4	Textbook of Surveying	C Venkatramaiah
978-81-7371-870-0	Textbook on Heat Transfer, A (Fourth Edition)	S P Sukhatme
978-81-7371-879-3	The Big and the Small Vol: 1	G Venkataraman
978-81-7371-850-2	The Big and the Small Vol: 2	G Venkataraman
978-81-7371-854-0	The Legacy of Caraka	M S Valiathan
978-81-7371-855-7	The Legacy of Vagbhata	M S Valiathan

978-81-7371-840-3	Thermal Imaging Technology: Design and Applications	R N Singh
978-81-7371-844-1	What are the Stars	G Srinivasan
978-81-7371-858-8	What Is Reality?	G Venkataraman
978-81-7371-877-9	Why are Things the Way they Are?	G Venkataraman
978-93-86235-03-9	Wings of Fire: An Autobiography	A P J Abdul Kalam
978-81-7371-780-2	Wings of Fire: An Autobiography	A P J Abdul Kalam & Arun Tiwari

Author Index

Title Index

Register with Us

At Universities Press, we believe in sharing details pertaining to our books and the events that we conduct. Should you wish to receive such information by email or by post on a regular basis, you may please write to marketing@universitiespress.com and confirm:

Name and address for correspondence: _____

_____

_____

Email address: _____

STD code: _____ Landline: _____ Mobile: _____

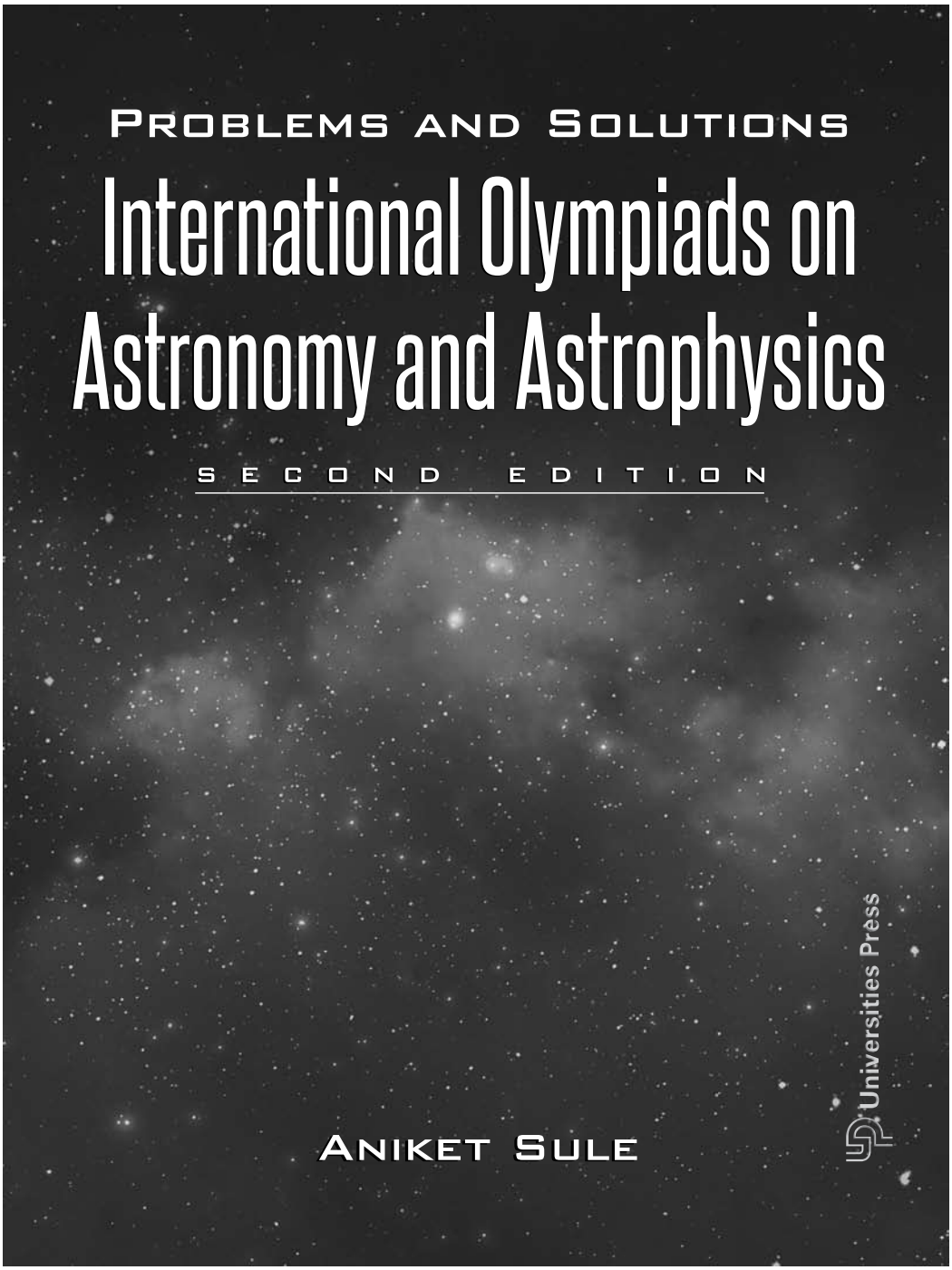
Subject areas of interest: _____

_____

_____

Please tick the relevant box and confirm the mode by which you would like to receive information from us. By Email: ☐ By Post: ☐ Both: ☐

We will be happy to register your details with our database and shall stay in touch.



₹ 450.00 978-81-7371-980-6 304 pp.
Paperback 180 x 240 mm 2015

MSRI Mathematical Circles Library

A Moscow Math Circle

Week-by-Week Problem Sets

Sergey Dorichenko

Universities Press

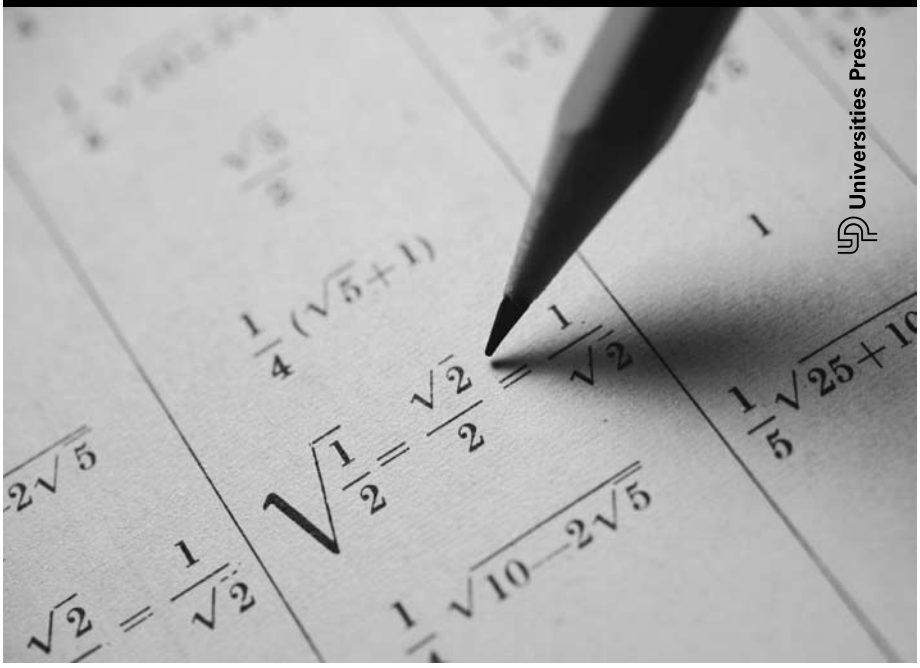
MSRI | AMS
MATHEMATICAL SCIENCES RESEARCH INSTITUTE
AMERICAN MATHEMATICAL SOCIETY

₹ 395.00 978-81-8128-993-6 264 pp.
Paperback 158 x 240 mm 2016

EDUCATIVE JEE MATHEMATICS

THIRD EDITION

K D Joshi



₹ 995.00 978-81-7371-945-5 1100 pp.
Paperback 158 x 240 mm 2015