

Engineering Chemistry Shashi Chawla

Engineering Chemistry is designed as a textbook for first year undergraduate engineering students. Besides covering the revised AICTE syllabus, it fulfils the syllabus requirements of universities across India. Divided into two parts, the book provides a comprehensive discussion of all relevant and important topics related to basic and applied chemistry.

This thoroughly revised and updated text, now in its second edition, is primarily intended as a textbook for undergraduate students of Physics. The book provides a sound understanding of the fundamental concepts of optics adopting an integrated approach to the principles of optics. It covers the requirements of syllabi of undergraduate students in Physics and Engineering in Indian Universities. The book includes a wide range of interesting topics such as Fermat's principle, geometrical optics, dispersion, interference, diffraction and polarization of light waves, optical instruments and lens aberrations. It also discusses electromagnetic waves, fundamentals of vibrations and wave motion. The text explains the concepts through extensive use of line drawings and gives full derivations of essential relations. The topics are dealt with in a well-organized sequence with proper explanations along with simple mathematical formulations.

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New to the SECOND Edition • Incorporates two new chapters, i.e., 'Fundamentals of Vibrations', and 'Wave Motion' • Includes several worked-out examples to help students reinforce their comprehension of theory • Provides Formulae at a Glance and Conceptual Questions with their answers for quick revision KEY FEATURES • Provides several Solved Numerical Problems to help students comprehend the concepts with ease • Includes Multiple Choice Questions and Theoretical Questions to help students check their understanding of the subject matter • Contains unsolved Numerical Problems with answers to build problem-solving skills

Professional Ethics is a textbook designed for budding engineers to understand important ethical concepts that will enable them to effectively resolve the moral issues they will face in real professional situations. It also provides an understanding of the interface between social, technological and natural environments.

Spatial database research has continued to advance greatly since three decades ago, addressing the growing data management and analysis needs of spatial applications. This research has produced a taxonomy of models for space, conceptual models, spatial query languages and query processing, spatial file organization and indexes, and spatial data mining. However, emerging needs for

spatial database systems include the handling of 3D spatial data, temporal dimension with spatial data, and spatial data visualization. In addition, the rise of new systems such as sensor networks and multi-core processors is likely to have an impact in spatial databases. The goal of this paper is to provide a broad overview of the recent advancements in spatial databases and research needs in each area.

Industrial applications of Metal complexes have gained significant importance especially in the area of Catalysis in the last three decades. Scope for further development of such applications is extensive as several biological processes in living cells involve metal complexes. Coordination Chemistry is a subject uniquely involving application of Quantum Mechanics, Spectroscopy, Kinetics, Catalysis, Biology and Industrial Chemistry. This book has been written keeping these important aspects of the subject in mind.

Focusing on the relationship between structure and properties, this is a well-balanced treatment of the mechanics and the materials science of composites, while not neglecting the importance of processing. This updated second edition contains new chapters on fatigue and creep of composites, and describes in detail how the various reinforcements, the materials in which they are embedded, and of the interfaces between them, control the properties of the composite

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materials at both the micro- and macro-levels. Extensive use is made of micrographs and line drawings, and examples of practical applications in various fields are given throughout the book, together with extensive references to the literature. Intended for use in graduate and upper-division undergraduate courses, this book will also prove a useful reference for practising engineers and researchers in industry and academia.

Market_Desc: Primary Market· RGPV (B.E.- 101 Engineering Chemistry)· VTU (10CHE12/ 10CHE 22 Engineering Chemistry)· BPUT (BSCC 2101 Chemistry)· UPTU (EAS-102/202 Engineering Chemistry)· WBUT (Chemistry -1 (Gr A and B))· JNTU (BS Engineering Chemistry)· Anna (CY2111 Engineering Chemistry-I; CY2161 Engineering Chemistry-II)· PTU (CH-101 Engineering Chemistry)· RTU ([106] and [206] Engineering Chemistry-I and II)· GTU (Chemistry)· CSVTU (300112 Applied Chemistry)Secondary Market· Higher semesters of Chemical and Biotechnology courses· Students preparing for GATE and TANCET examinations. Special Features: · Accordant with the syllabi of various technical universities· Structured to support the objective of Engineering Chemistry course for undergraduates· Excellent correlation of concepts with their applications· Systematic chapter organization based on logical progression of conceptsü Builds the fundamentals of the subject in the initial chaptersü Comprehensively

covers the applied topics in the field of engineering in the later chapters.ü
Coherent chapter layout withü Clearly defined learning objectives.ü Introduction
of topics, their precise and adequate explanation.ü Ample illustrations and
diagrams.ü Solved examples at the end of relevant subtopics to strengthen the
concepts.· Multiple-author model with content sourced from experts in respective
areas of expertise (Inorganic, Organic, Physical, Analytical and Applied
Chemistry) across geographies.· Comprehensive question bank at the end of
each chapter containingü Objective type questions (classified into multiple-choice
questions and fill in the blanks).ü Review questions (categorized into short-
answer and long-answer type questions).ü Numerical problems.· Extensively
reviewed content with single or multiple reviews by academicians of various
technical universities for each chapter to generate error-free and accurate
content. About The Book: The Engineering Chemistry course for undergraduate
students is designed to strengthen the fundamentals of chemistry and then build
an interface of theoretical concepts with their industrial/engineering applications.
This book is structured keeping in view the objective of the course and is
intended as a textbook for first year B.Tech/B.E. students of all engineering
disciplines. The book aims to impart in-depth knowledge of the subject and
highlight the role of chemistry in the field of engineering. The lucid explanation of

the topics will help students understand the fundamental concepts and apply them to design engineering materials and solve problems related to them. An attempt has been made to logically correlate the topic with its application. The extension of fundamentals of electrochemistry to energy storage devices such as commercial batteries and fuel cells is one such example. The layout for a topic is designed after detailed study and analysis of the syllabi of various technical universities. The chapter for each topic begins with clearly defined learning objectives, followed by introduction of subtopics, their precise and adequate explanation supported with ample illustrations and diagrams. Solved examples are given at the end of relevant subtopics to strengthen the concepts. The chapters conclude with a set of review and practice questions.

'Utterly absorbing and deliciously erotic' Angela Knight 'Hot, sexy, unique, intriguingly wicked' Christine Feehan Return to the dark and sexy Black Dagger Brotherhood world in this second prison camp installment from #1 New York Times bestselling author J. R. Ward . . . Payne, twin sister of Vishous, is cut from the same dark, seductive cloth as her brother. Imprisoned for eons by their mother, the Scribe Virgin, she finally frees herself - only to face a devastating injury. Manuel Manello, MD, is drafted by the Brotherhood to save her as only he can - but when the human surgeon and the vampire warrior meet, their two

worlds collide in the face of their undeniable passion. With so much working against them, can love prove stronger than the birth right and the biology that separate them? Find out why readers are OBSESSED with the Black Dagger Brotherhood... 'It's not easy to find a new twist on the vampire myth, but Ward succeeds beautifully. This dark and compelling world is filled with enticing romance as well as perilous adventure. With myriad possibilities to choose from, the Black Dagger Brotherhood series promises tons of thrills and chills' Romantic Times 'Insanely good! . . . Intensely romantic and straight up flipping steamy, violent and gruesome, heartbreaking and deep. Her addictive writing tells a story like none other' Goodreads reviewer 'I can't get enough of these sexy, tough, intriguing vampires' Amazon reviewer 'Emotional by epic proportions' Kobo reviewer 'The Black Dagger Brotherhood is a twisting, often surprising, but always awesome read' Amazon reviewer 'A must read' Goodreads reviewer 'The story had me captivated the whole way' Kobo reviewer 'Each and every character is compelling' Amazon reviewer

The Importance Of Environmental Studies Cannot Be Disputed Since The Need For Sustainable Development Is A Key To The Future Of Mankind. Recognising This, The Honourable Supreme Court Of India Directed The Ugc To Introduce A Basic Course On Environmental Education For Undergraduate Courses In All

Disciplines, To Be Implemented By Every University In The Country. Accordingly, The Ugc Constituted An Expert Committee To Formulate A Six-Month Core Module Syllabus For Environmental Studies. This Textbook Is The Outcome Of The Ugc S Efforts And Has Been Prepared As Per The Syllabus. It Is Designed To Bring About An Awareness On A Variety Of Environmental Concerns. It Attempts To Create A Pro-Environmental Attitude And A Behavioural Pattern In Society That Is Based On Creating Sustainable Lifestyles And A New Ethic Towards Conservation. This Textbook Stresses On A Balanced View Of Issues That Affect Our Daily Lives. These Issues Are Related To The Conflict Between Existing `Development Strategies And The Need For `Conservation . It Not Only Makes The Student Better Informed On These Concerns, But Is Expected To Lead The Student Towards Positive Action To Improve The Environment. Based On A Multidisciplinary Approach That Brings About An Appreciation Of The Natural World And Human Impact On Its Integrity, This Textbook Seeks Practical Answers To Make Human Civilization Sustainable On The Earth S Finite Resources. Attractively Priced At Rupees One Hundred And Fifteen Only, This Textbook Covers The Syllabus As Structured By The Ugc, Divided Into 8 Units And 50 Lectures. The First 7 Units, Which Cover 45 Lectures Are Classroom Teaching-Based, And Enhance Knowledge Skills And Attitude To Environment.

Unit 8 Is Based On Field Activities To Be Covered In 5 Lecture Hours And Would Provide Students With First Hand Knowledge On Various Local Environmental Issues.

The book in its present form is due to my interaction with the students for quite a long time. It had been my long-cherished desire to write a book covering most of the topics that form the syllabi of the Engineering and Science students at the degree level. Many students, although able to understand the various topics of the books, may not be able to put their knowledge to use. For this purpose a number of questions and problems are given at the end of each chapter.

Written in lucid language, the book offers a detailed treatment of fundamental concepts of chemistry and its engineering applications.

Water And Its Industrial Applications | Fuels And Combustion | Lubricants | Cement And Refractories | Polymers | Instrumental Techniques In Chemical Analysis | Water Analysis Techniques | Question Bank

This book on Engineering Chemistry has been entirely rewritten in order to make it up-to-date and modern, both in approach and content. All diagrams have been redrawn or replaced by new ones. To meet the requirements of the latest syllabi of the various universities of India, topics like transition metals, coordination compounds, crystal field theory, gaseous and liquid states, adsorption, flame photometry, fullerenes, composites, mechanism of some typical reactions,

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oils and fats, soaps and detergents, have been included or expanded upon. A large number of solved numerical examples drawn from various university examinations have been given at the end of theoretical part of each chapter. Questions have been drawn from latest examinations of various universities.

The challenge for today's new chemistry graduates is to meet society's demand for new products that have increased benefits, but without detrimental effects on the environment. Green Chemistry: An Introductory Text outlines the basic concepts of the subject in simple language, looking at the role of catalysts and solvents, waste minimisation, feedstocks, green metrics and the design of safer, more efficient, processes. The inclusion of industrially relevant examples throughout demonstrates the importance of green chemistry in many industry sectors. Intended primarily for use by students and lecturers, this book will also appeal to industrial chemists, engineers, managers or anyone wishing to know more about green chemistry.

A Textbook of Engineering Physics is written with two distinct objectives: to provide a single source of information for engineering undergraduates of different specializations and provide them a solid base in physics. Successive editions of the book incorporated topics as required by students pursuing their studies in various universities. In this new edition the contents are fine-tuned, modernized and updated at various stages.

Some chapters in the book deal with the basic principles of chemistry while others are focused on its applied aspects, providing the correct interphase between the principles of chemistry and engineering. **KEY FEATURES** * Chapters cover both basic principles of chemistry as also its applied aspects. * Written in easy self-explanatory language and in depth at the same time. *

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Review questions provided at the end of each chapter. * A separate section 'Laboratory Manual' in Engineering Chemistry comprising 12 experiments is appended at the end of the book.

This updated edition of Gesser's classic textbook has undergone a full revision and now has the latest material, including new chapters on semiconductors and nanotechnology. It includes a supplementary laboratory section with stepwise experimental protocols.

Due to its simple language, straightforward approach to explaining concepts, and the right kind of examples, this book has established itself as student's companion in almost all leading universities in India. With its authentic text and a large number of questions taken from various university examinations, coupled with regular revisions, the book has served well for more than 20 years now. In the attempt to keep the book aligned with various syllabuses and to reach out to students of more and more universities, more details have been included for the fourth edition, which has been completely recast and reformatted. The book is meant for the first year engineering degree courses of Indian universities. **STRENGTH OF THE BOOK** • Numerous solved problems • Large number of questions from various universities for exhaustive practice • Boxes featuring important and popular aspects of the topic **NEW IN THE FOURTH EDITION** • Completely recast and reformatted text • New topics like: Cooling curves for one- and two-component eutectics; Electrode polarization and overvoltage; Decomposition potential; Solar cells; Pitting corrosion; Metallurgy and medicine; Reverse osmosis; Bioengineering.

Engineering Chemistry is an interdisciplinary subject offered to undergraduate Engineering students. This book introduces the fundamental concepts in a simple and concise manner and highlights the role of chemistry in the field of engineering. It includes a large number of end-of-

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chapter exercises that test the student's understanding besides being useful from the examination point of view.

Environmental Studies Pertain To A Systematic Analysis Of The Natural And Man-Made World Encompassing Various Scientific, Economic, Social And Ethical Aspects. Human Impacts Leading To Large-Scale Degradation Of The Environment Have Aroused Global Concern On Environmental Issues In The Recent Years. The Apex Court Has Hence, Issued Directive To Impart Environmental Literacy To All. In This Book The Fundamental Concepts Of Environmental Studies Have Been Introduced And Analyzed In A Simple Manner Strictly As Per The Module Syllabus Designed By The Ugc For Undergraduate Courses In Science, Humanities, Engineering, Medicine, Pharmacy, Commerce, Management And Law. Besides The Undergraduate Students Of All Disciplines The Book Will Also Be Useful For Those Appearing In Various Competitive Exams Since Environmental Issues Now Find A Focus In Most Of Such Examinations. The Contents Of The Book Will Be Of Interest To All Educationists, Planners And Policy Makers. Key Features Of The Book Include A Simple And Holistic Approach With Illustrations, Tables And Specific Case Studies Mainly In The Indian Context. The Basic Terminologies Have Been Defined In The Text While Introducing The Topics And Some Useful Terms Mentioned In The Text Have Been Explained In The Glossary For An Easy Grasp By Students Of All Disciplines.

Any good text book, particularly that in the fast changing fields such as engineering & technology, is not only expected to cater to the current curricular requirements of various institutions but also should provide a glimpse towards the latest developments in the concerned subject and the relevant disciplines. It should guide the periodic review and updating

of the curriculum.

The Most Authentic Source Of Information On Higher Education In India The Handbook Of Universities, Deemed Universities, Colleges, Private Universities And Prominent Educational & Research Institutions Provides Much Needed Information On Degree And Diploma Awarding Universities And Institutions Of National Importance That Impart General, Technical And Professional Education In India. Although Another Directory Of Similar Nature Is Available In The Market, The Distinct Feature Of The Present Handbook, That Makes It One Of Its Kind, Is That It Also Includes Entries And Details Of The Private Universities Functioning Across The Country. In This Handbook, The Universities Have Been Listed In An Alphabetical Order. This Facilitates Easy Location Of Their Names. In Addition To The Brief History Of These Universities, The Present Handbook Provides The Names Of Their Vice-Chancellor, Professors And Readers As Well As Their Faculties And Departments. It Also Acquaints The Readers With The Various Courses Of Studies Offered By Each University. It Is Hoped That The Handbook In Its Present Form, Will Prove Immensely Helpful To The Aspiring Students In Choosing The Best Educational Institution For Their Career Enhancement. In Addition, It Will Also Prove Very Useful For The Publishers In Mailing Their Publicity Materials. Even The Suppliers Of Equipment And Services Required By These Educational Institutions Will Find It Highly Valuable.

Completely revised and updated, Elements of Environmental Engineering: Thermodynamics and Kinetics, Second Edition covers the applications of chemical thermodynamics and kinetics in environmental processes. Each chapter has been rewritten and includes new examples that better illuminate the theories discussed. An excellent introduction to environmental

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engineering, this reference stands alone in its multimedia approach to fate and transport modeling and in pollution control design options. Clearly and lucidly written, it provides extensive tables, figures, and data that make it the reference to have on this subject. This comprehensive book, in its third edition, continues to provide an in-depth analysis on the fundamental principles of electrical engineering. The exposition of these principles is fully reinforced by many practical problems that illustrate the concepts discussed. Beginning with a precise and quantitative detailing of the basics of electrical engineering, the text moves on to explain the fundamentals of circuit theory, electrostatic and electromagnetism and further details on the concept of electromechanical energy conversion. The book provides an elaborate and systematic analysis of the working principle, applications and construction of each electrical machine. In addition to circuit responses under steady state conditions, the book contains the chapters on dynamic responses of networks and analysis of a three-phase circuit. In this third edition, two chapters on Electrical Power System and Domestic Lighting have been added to fulfil the syllabus requirement of various universities. The chapters discuss different methods of generating electrical power, economic consideration and tariff of power system, illumination, light sources used in lighting systems, conductor size and insulation, lighting accessories used in wiring systems, fuses and MCBs, meter board, main switch and distribution board, earthing methods, types of wiring, wiring system for domestic use and cost estimation of wiring system. Designed as a text for the undergraduate students of almost all branches of engineering, the book will also be useful to the practising engineers as reference.

Key Features

- Discusses statements with numerical examples
- Includes answers to the numerical problems at the end of the book
- Enhances learning of the basic working principles

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of electrical machines by using a number of supporting examples, review questions and illustrative examples

This book contains all the chapters related to engineering chemistry that students need to know for their exams, including laws of chemical combination, the kinetics molecular theory, the mole concept, electronic structure atoms, periodicity of elements, osmosis and osmotic pressure, colloids, lubricants, fuels, principles and methods of purification of substances, ores and minerals, metallurgy of iron and steel.

Engineering Chemistry discusses the fundamental theoretical concepts of chemistry and links them with their engineering applications. The book is designed as an introductory course for undergraduate students in all branches of engineering. Employing an easy-to-understand approach, it elaborates on the fundamental concepts and their applications, and includes scores of illustrations and learning exercises to facilitate comprehension. Starting with areas of common interest, such as fuels, water, corrosion and phase rule, followed by chapters on engineering materials, polymers and lubricants, the book then covers a range of important subjects, such as structure and bonding, solid state, liquid crystal, chemical kinetics, surface chemistry, thermodynamics, electrochemistry, spectroscopy, photochemistry, the basics of organic chemistry and

organometallic compounds. It also covers the applications of several important topics in detail, including nanomaterials, green chemistry, NMR spectroscopy and biotechnology.

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