

Engineering Chemistry Ravikrishnan

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GLORIA VANESSA

[Engineering Chemistry](#) Elsevier

Sarah's dream was to live in a beautiful valley with a slow moving river running through it. This was a big dream for a young girl who, along with her brother Frank, were orphaned early in life. Their parents died with the wagon train on the way to California in the early 1800's. Sarah and Frank were the only survivors. How would two children survive the highway men, the raging grassfires, the cold winters and the heartache? This is their life story as told through the eyes of an old Indian man named Winnepesaukee.

[Biomedical Hydrogels](#) Routledge

Compatibilization of Polymer Blends: Micro and Nano Scale Phase Morphologies, Interphase Characterization and Properties offers a comprehensive approach to the use of compatibilizers in polymer blends, examining both fundamental and advanced knowledge in the field. The book begins by introducing polymer blends, describing thermodynamics, miscibility, and phase separation, and explaining the main concepts of compatibilization. Other sections cover theoretical approaches for nearly compatible blends, incompatible blends, nanofillers, physical compatibilization, reactive compatibilization, morphological and structural characterization, and physico-mechanical characterization. Finally, key application areas are covered,

including biomedical applications, packaging and automobile engineering. While this book will be a highly valuable reference source for academics, researchers and postgraduate students interested in polymer blends, it will also be ideal for anyone involved in the fields of polymer science, polymer chemistry, polymer physics, materials science, scientists, R&D professionals, and engineers involved in the development or engineering of polymer products. Offers detailed and systematic coverage of essential and advanced topics relating to the compatibilization of polymer blends Presents a critical analysis of the effect of compatibilization on morphology and thermal, mechanical, electrical and viscoelastic properties of polymer blends Draws on novel studies and state-of-the-art research, discussing the latest issues and developments

[Engineering Chemistry](#) Tata McGraw-Hill Education

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 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.

Theory and Practice Pearson Education India

Beginning with the basics of computers, the book provides an in-depth analysis of various constructs of C. The key topics include iterative and

decision-control statements, functions, recursion, arrays, strings, pointers, structures and unions, and file management. It deals separately with the fundamental concepts of linked lists - the preferred data structure for dynamic allocation of memory. The book also includes a chapter on different searching and sorting algorithms and analysis of time and space complexity of algorithms.

[Elements of Environmental Engineering](#) Cambridge University Press

Coulson and Richardson's Chemical Engineering: Volume 3A: Chemical and Biochemical Reactors and Reaction Engineering, Fourth Edition, covers reactor design, flow modelling, gas-liquid and gas-solid reactions and reactors. Captures content converted from textbooks into fully revised reference material. Includes content ranging from foundational through technical. Features emerging applications, numerical methods and computational tools.

A Text and E-book S. Chand Publishing

Life is impossible without chemistry. Engineering chemistry has a special role to play in the curriculum of under graduate students of all branches of Engineering. The present book entitled "ENGINEERING CHEMISTRY LABORATORY MANUAL" is very useful to Engineering students of various Institutions. The practical book providing simple and easy approach on the subject matter to Engineering students.

[Environmental Science And Engineering \(anna University\)](#) Vikas Publishing House

Engineering Chemistry-II serves as a textbook for the second semester course for I year BE/B. Tech students of Anna University, Chennai. The book is informative and exhaustive to meet the requirements of students who aim to assimilate authentic knowledge for use during engineering course as well as in their careers. The theoretical portions have been explained in simple language, clear style with lot of solved problems and illustrated diagrams. Academic and industrial communities will find this book a valuable resource. Key Features • Specifically designed for I year B.E. students of colleges affiliated to Anna University, Chennai. • The chapters are presented in simple language. • Suitable diagrams for clear understanding of the concepts. • The recent developments in the respective fields are included in all the chapters. • Comparative tables are presented where ever two similar concepts arise. • Many solved problems. • Review questions from previous Anna University examinations at the end of each chapter.

[A TEXTBOOK OF ENGINEERING CHEMISTRY](#) CRC Press

Coulson and Richardson's Chemical Engineering: Volume 3A: Chemical and Biochemical Reactors and Reaction Engineering, Fourth Edition, covers reactor design, flow modelling, gas-liquid and gas-solid reactions and reactors. Captures content converted from textbooks into fully revised reference material. Includes content ranging from foundational through technical. Features emerging applications, numerical methods and computational tools.

[Engineering Chemistry-II \(Anna University\)](#) Chemistry for Technologists The Commonwealth and International Library: Electrical Engineering Division. 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, 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.

[Systems-level Modelling of Microbial Communities](#) Routledge

Large scale cultivation of macrofungi is possible with fermentation, using easily accessible lignocellulosic agricultural residues applying economical methods to generate substantial biomass, food and biofuels. Bioconversion of lignocellulosic wastes by macrofungi generates value-added fungal nutritional biomass for humans and livestock. Besides commercial cultivation techniques, other topics covered in *Advances in Macrofungi: Industrial Avenues and Prospects* include: the healing potential of mushrooms, industrial opportunities, mycelium-based products, forest wild mushrooms and industrial applications of white rot fungi. This book reviews the industrial applications and uses of macrofungi. It encourages students and researchers to explore non-conventional sources of nutrition as well as bioactive metabolites to serve as nutraceuticals. It emphasizes the potential of macrofungi as a source of bioactive compounds to remedy human lifestyle diseases especially cancers and cardiovascular ailments along with immunostimulation potential by Cordyceps. This book emphasizes the role of mushrooms as a source of cosmeceuticals, flavors, essence, scents and perfumes.

[Engineering Chemistry](#) CRC Press

Large scale cultivation of macrofungi is possible with fermentation, using easily accessible lignocellulosic agricultural residues utilising economical methods to generate substantial biomass, food and biofuels. Bioconversion of lignocellulosic wastes by macrofungi generates value-added fungal nutritional biomass for humans and livestock. Besides commercial cultivation techniques, other topics covered include healing potential of mushrooms, industrial opportunities, mycelium-based products, forest wild mushrooms and industrial applications of white rot fungi. This book addresses the various applications of macrofungi. It encourages readers to explore non-conventional sources of nutrition as well as bioactive metabolites to serve as nutraceuticals. The volume emphasizes the significance of macrofungi as source of bioactive compounds to remedy human lifestyle diseases especially cancers and cardiovascular ailments along with immunostimulation potential by Cordyceps. This book also emphasises on the role of mushrooms as a source of cosmeceuticals, source of flavors, essence, scents and perfumes.

[Advances in Chitin/Chitosan Characterization and Applications](#) CRC Press

Now in its eighth edition, Higher Engineering Mathematics has helped thousands of students succeed in their exams. Theory is kept to a minimum, with the emphasis firmly placed on problem-solving skills, making this a thoroughly practical introduction to the advanced engineering mathematics that students need to master. The extensive and thorough topic coverage makes this an ideal text for upper-level vocational courses and for undergraduate degree courses. It is also supported by a fully updated companion website with resources for both students and lecturers. It has full solutions to all 2,000 further questions contained in the 277 practice exercises.

[Fundamental Concepts of Environmental Chemistry](#) New Age International

Written by the most well known face of India's IT literacy movement, this book is designed for the first course in C# taken by undergraduate students in Computers and Information Technology. The revised edition maintains the lucid flow and continuity which has been the strength of the book.

[Modern physics](#) PHI Learning Pvt. Ltd.

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.

Micro and Nano Scale Phase Morphologies, Interphase Characterization, and Properties CRC Press

Engineering Mechanics is a textbook specifically designed for a one-semester interdisciplinary course offered at the university level for undergraduate engineering programmes in India.

[Coulson and Richardson's Chemical Engineering](#) Elsevier

Functional advanced biopolymers have received far less attention than renewable biomass (cellulose, rubber, etc.) used for energy production. Among the most advanced biopolymers known is chitosan. The term chitosan refers to a family of polysaccharides obtained by partial de-N-acetylation from chitin, one of the most abundant renewable resources in the biosphere. Chitosan has been firmly established as having unique material properties as well as biological activities. Either in its native form or as a chemical derivative, chitosan is amenable to being processed—typically under mild conditions—into soft materials such as hydrogels, colloidal nanoparticles, or nanofibers. Given its multiple biological properties, including biodegradability, antimicrobial effects, gene transfectability, and metal adsorption—to name but a few—chitosan is regarded as a widely versatile building block in various sectors (e.g., agriculture, food, cosmetics, pharmacy) and for various applications (medical devices, metal adsorption, catalysis, etc.). This Special Issue presents an updated account addressing some of the major applications, including also chemical and enzymatic modifications of oligos and polymers. A better understanding of the properties that underpin the use of chitin and chitosan in different fields is key for boosting their more extensive industrial utilization, as well as to aid regulatory agencies in establishing specifications, guidelines, and standards for the different types of products and applications.

[Thermodynamics and Kinetics, Second Edition](#) Butterworth-Heinemann

An advanced-level textbook of physical chemistry for the graduate (B.Sc) and postgraduate (M.Sc) students of Indian and foreign universities. This book is a part of four volume series, entitled "A Textbook of Physical Chemistry - Volume I, II, III, IV". CONTENTS: Chapter 1. Quantum Mechanics - I: Postulates of quantum mechanics; Derivation of Schrodinger wave equation; Max-Born interpretation of wave functions; The Heisenberg's uncertainty principle; Quantum mechanical operators and their commutation relations; Hermitian operators (elementary ideas, quantum mechanical operator for linear momentum, angular momentum and energy as Hermitian operator); The average value of the square of Hermitian operators; Commuting operators and uncertainty principle (x & p ; E & t); Schrodinger wave equation for a particle in one dimensional box; Evaluation of average position, average momentum and determination of uncertainty in position and momentum and hence Heisenberg's uncertainty principle; Pictorial representation of the wave equation of a particle in one dimensional box and its influence on the kinetic energy of the particle in each successive quantum level; Lowest energy of the particle. Chapter 2. Thermodynamics - I: Brief resume of first and second Law of thermodynamics; Entropy changes in reversible and irreversible processes; Variation of entropy with temperature, pressure and volume; Entropy concept as a measure of unavailable energy and criteria for the spontaneity of reaction; Free energy, enthalpy functions and their significance, criteria for spontaneity of a process; Partial molar quantities (free energy, volume, heat concept); Gibb's-Duhem equation. Chapter 3. Chemical Dynamics - I: Effect of temperature on reaction rates; Rate law for opposing reactions of 1st order and 1st order; Rate law for consecutive & parallel reactions of 1st order reactions; Collision theory of reaction rates and its limitations; Steric factor; Activated complex theory; Ionic reactions: single and double sphere models; Influence of solvent and ionic strength; The comparison of collision and activated complex theory. Chapter 4. Electrochemistry - I: Ion-Ion Interactions: The Debye-Huckel theory of ion-ion interactions; Potential and excess charge density as a function of distance from the central ion; Debye Huckel reciprocal length; Ionic cloud and its contribution to the total potential; Debye - Huckel limiting law of activity coefficients and its limitations; Ion-size effect on potential; Ion-size parameter and the theoretical mean-activity coefficient in the case of ionic clouds with finite-sized ions; Debye - Huckel-Onsager treatment for aqueous solutions and its limitations; Debye-Huckel-Onsager theory for non-aqueous solutions; The solvent effect on the mobility at infinite dilution; Equivalent conductivity (Λ) vs. concentration $c^{1/2}$ as a function of the solvent; Effect of ion association upon conductivity (Debye- Huckel - Bjerrum equation). Chapter 5. Quantum Mechanics - II: Schrodinger wave equation for a particle in a three dimensional box; The concept of degeneracy among energy levels for a particle in three dimensional box; Schrodinger wave equation for a linear harmonic oscillator & its solution by polynomial method; Zero point energy of a particle possessing harmonic motion and its consequence; Schrodinger wave equation for three dimensional Rigid rotator; Energy of rigid rotator; Space quantization; Schrodinger wave equation for hydrogen atom, separation of variable in polar spherical coordinates and its solution; Principle, azimuthal and magnetic quantum numbers and the magnitude of their values; Probability distribution function; Radial distribution function; Shape of atomic orbitals (s, p & d). Chapter 6. Thermodynamics - II: Clausius-Clayperon equation; Law of mass action and its thermodynamic derivation; Third law of thermodynamics (Nernst heat theorem, determination of absolute entropy, unattainability of absolute zero) and its limitation; Phase diagram for two completely miscible components systems; Eutectic systems, Calculation of eutectic point; Systems forming solid compounds $A_x B_y$ with congruent and incongruent melting points; Phase diagram and thermodynamic treatment of solid solutions. Chapter 7. Chemical Dynamics - II: Chain reactions: hydrogen-bromine reaction, pyrolysis of acetaldehyde, decomposition of ethane; Photochemical reactions (hydrogen - bromine & hydrogen -chlorine reactions); General treatment of chain reactions (ortho-para hydrogen conversion and hydrogen - bromine reactions); Apparent activation energy of chain reactions, Chain length; Rice-Herzfeld mechanism of organic molecules decomposition (acetaldehyde); Branching chain reactions and explosions (H_2-O_2 reaction); Kinetics of (one intermediate) enzymatic reaction : Michaelis-Menton treatment; Evaluation of Michaelis 's constant for enzyme-substrate binding by Lineweaver-Burk plot and Eadie-Hofstae methods; Competitive and non-competitive inhibition. Chapter 8. Electrochemistry - II: Ion Transport in Solutions: Ionic movement under the influence of an electric field; Mobility of ions; Ionic drift velocity and its relation with current density; Einstein relation between the absolute mobility and diffusion coefficient; The Stokes- Einstein relation; The Nernst -Einstein equation; Walden's rule; The Rate-process approach to ionic migration; The Rate process equation for equivalent conductivity; Total driving force for ionic transport, Nernst - Planck Flux equation; Ionic drift and diffusion potential; the Onsager phenomenological equations; The basic equation for the diffusion; Planck-Henderson equation for the

diffusion potential.

Biochemistry, Manufacture and Medical Applications Tata McGraw-Hill Education

Now in its seventh edition, Basic Engineering Mathematics is an established textbook that has helped thousands of students to succeed in their exams. Mathematical theories are explained in a straightforward manner, being supported by practical engineering examples and applications in order to ensure that readers can relate theory to practice. The extensive and thorough topic coverage makes this an ideal text for introductory level engineering courses. This title is supported by a companion website with resources for both students and lecturers, including lists of essential formulae, multiple choice tests, and full solutions for all 1,600 further questions.

[Advances in Macrofungi](#) Vikas Publishing House

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Chemistry for Technologists The Commonwealth and International Library: Electrical Engineering Division Elsevier

Chemistry for Technologists Educreation Publishing

Systems-Level Modelling of Microbial Communities: Theory and Practice introduces various aspects of modelling microbial communities and presents a detailed overview of the computational methods which have been developed in this area. This book is aimed at researchers in the field of computational/systems biology as well as biologists/experimentalists studying microbial communities, who are keen on embracing the concepts of computational modelling. The primary focus of this book is on methods for modelling interactions between micro-organisms in a community, with special emphasis on constraint-based and network-based modelling techniques. A brief overview of population- and agent-based modelling is also presented. Lastly, it covers the experimental methods to understand microbial communities, and provides an outlook on how the field may evolve in the coming years.