

Reeds Mathematics For Engineers Volume 1

Thoroughly revised, this third edition focuses on modern techniques used to generate synthetic three-dimensional images in a fraction of a second. With the advent of programmable shaders, a wide variety of new algorithms have arisen and evolved over the past few years. This edition discusses current, practical rendering methods used in games and other applications. It also presents a solid theoretical framework and relevant mathematics for the field of interactive computer graphics, all in an approachable style. The authors have made the figures used in the book available for download for fair use.:Download Figures. Reviews Rendering has been a required reference for professional graphics practitioners for nearly a decade. This latest edition is as relevant as ever, covering topics from essential mathematical foundations to advanced techniques used by today's cutting edge games. -- Gabe Newell, President, Valve, May 2008

Rendering ... has been completely revised and revamped for its updated third edition, which focuses on modern techniques used to generate three-dimensional images in a fraction of the time old processes took. From practical rendering for games to math and details for better interactive applications, it's not to be missed. -- The Bookwatch, November 2008 You'll get brilliantly lucid explanations of concepts like vertex morphing and variance shadow mapping—as well as a new respect for the incredible craftsmanship that goes into today's PC games. -- Logan Decker, PC Gamer Magazine , February 2009

Developed to complement Reeds Vol 12 (Motor Engineering for Marine Engineers), this textbook is key for all marine engineering officer cadets. Accessibly written and clearly illustrated, General Engineering Knowledge for Marine Engineers takes into account the varying needs of students studying 'general' marine engineering, recognising recent changes to the Merchant Navy syllabus and current pathways to a sea-going engineering career. It includes the latest equipment, practices and trends in marine engineering, as well as incorporating the 2010 Manila Amendments, particularly relating to management. It is an essential buy for any marine engineering student. This new edition reflects all developments within the discipline and includes updates and additions on, amongst other things: · Corrosion, water treatments and tests · Refrigeration and air conditioning · Fuels, such as LNG and LPG · Insulation · Low sulphur fuels · Fire and safety Plus updates to many of the technical engineering drawings.

The subjects treated in this book are those commonly required in mechanical and marine engineering, including naval architecture. The formulae are graduated to cover the subjects at all stages from technician level to degree, from cadet level to Extra First Class Certificate. Inevitably some specialised or favourite formulae will have been omitted, so after each subject a few blank pages have been provided to allow extra formulae and design data to be recorded.

The majority of professors have never had a formal course in education, and the most common method for learning how to teach is on-the-job training. This represents a challenge for disciplines with ever more complex subject matter, and a lost opportunity when new active learning approaches to education are yielding dramatic improvements in student learning and retention. This book aims to cover all aspects of teaching engineering and other technical subjects. It presents both practical matters and educational theories in a format useful for both new and experienced teachers. It is organized to start with specific, practical teaching applications and then leads to psychological and educational theories. The "practical orientation" section explains how to develop objectives and then use them to enhance student learning, and the "theoretical orientation" section discusses the theoretical basis for learning/teaching and its impact on students. Written mainly for PhD students and professors in all areas of engineering, the book may be used as a text for graduate-level classes and professional workshops or by professionals who wish to read it on their own. Although the focus is engineering education, most of this book will be useful to teachers in other disciplines. Teaching is a complex human activity, so it is impossible to develop a formula that guarantees it will be excellent. However, the methods in this book will help all professors become good teachers while spending less time preparing for the classroom. This is a new edition of the well-received volume published by McGraw-Hill in 1993. It includes an entirely revised section on the Accreditation Board for Engineering and Technology (ABET) and new sections on the characteristics of great teachers, different active learning methods, the application of technology in the classroom (from clickers to intelligent tutorial systems), and how people learn.

Covering the syllabus in mathematics for the Marine Engineer Officer Certificates of Competency in the Merchant Navy, each chapter of this book has fully worked examples woven into the text. Test examples are set at the end of each chapter, and some typical exam questions are included. The author has provided fully worked step-by-step solutions to the final answers.

This book provides comprehensive coverage of the basic theoretical work required by Marine Engineering Officers and Electrotechnical Officers (ETOs), putting into place key fundamental building blocks and topics in electrotechnology before progressing to more complex topics and electromagnetic systems. Volume 6 covers essential basic electrotechnology principles for the 21st century, including the fundamentals of electron theory, AC and DC current, circuits, electromagnetism and electrochemistry, providing a firm foundation for complementary Volume 7 in the Marine Engineering Series to discuss emergent technology such as image intensifiers, the transistor, increased maritime use of LEDs, and references to modern ship systems such as GPS, ECDIS, Radar and AIS. This new edition has been thoroughly updated in line with guidelines, best practice and the many technological developments that have taken place over the past 5 years since the previous edition published, as well as improvements and updates to the technical diagrams.

This book covers the general engineering knowledge required by candidates for the Department of Transport's Certificates of Competency in Marine Engineering, Class One and Class Two. The text is updated throughout in this third edition, and new chapters have been added on production of fresh water and on noise and vibration. Reference is also provided to up-to-date papers and official publications on specialized topics. These updates ensure that this little volume will continue to be a useful pre-examination and revision text. - Marine Engineers Review, January 1992

Rarely has the history or philosophy of mathematics been written about by mathematicians, and the analysis of mathematical texts themselves has been an area almost entirely unexplored. Figures of Thought looks at ways in which mathematical works can be read as texts, examines their textual strategies and demonstrates that such readings provide a rich source of philosophical issues regarding mathematics: issues which traditional approaches to the history and philosophy of mathematics have neglected. David Reed, a professional mathematician

himself, offers the first sustained and critical attempt to find a consistent argument or narrative thread in mathematical texts. In doing so he develops new and fascinating interpretations of mathematicians' work throughout history, from an in-depth analysis of Euclid's Elements, to the mathematics of Descartes and right up to the work of contemporary mathematicians such as Grothendieck. He also traces the implications of this approach to the understanding of the history and development of mathematics.

Methods of Modern Mathematical Physics, Volume I: Functional Analysis discusses the fundamental principles of functional analysis in modern mathematical physics. This book also analyzes the influence of mathematics on physics, such as the Newtonian mechanics used to interpret all physical phenomena. Organized into eight chapters, this volume starts with an overview of the functional analysis in the study of several concrete models. This book then discusses how to generalize the Lebesgue integral to work with functions on the real line and with Borel sets. This text also explores the properties of finite-dimensional vector spaces. Other chapters discuss the normed linear spaces, which have the property of being complete. This monograph further examines the general class of topologized vector spaces and the spaces of distributions that arise in a wide variety of physical problems and functional situations. This book is a valuable resource for mathematicians and physicists. Students and researchers in the field of geometry will also find this book extremely useful.

This book is a companion to Reeds Vol. 6: Basic Electrotechnology for Marine Engineers and covers aspects of theory beyond the scope of Volume 6. The book will cover the more advanced topics in electrotechnology for professional trainees studying Merchant Navy Marine Engineering Certificates of Competency (CoC) as well as the syllabi in electrotechnology for undergraduates studying for BSc, BEng and MEng degrees in marine engineering and electrical engineering. The new edition provides worked examples and test exam questions, corresponding to current Merchant Navy Qualifications. Other revisions will include new material on emerging technology areas such as image intensifiers (photoelectric effect, secondary emission), thermal imaging cameras, radar, increased maritime use of LEDs, various semiconductor physics devices including the laser, as well as discussions of binary or digital theory. This is a fully revised, new edition on the topic of instrumentation and control systems and their application to marine engineering for professional trainees studying Merchant Navy Marine Engineering Certificates of Competency (CoC) as well as Electrical/Marine Engineering undergraduate students. Providing generic technical and practical descriptions of the operation of instrumentation and control devices and systems, this volume also contains mathematic analysis where appropriate. Addressing this subject area, the domain of Instrumentation Engineers/Technicians as well as Control Engineers, and covering established processes and protocols and extensive developing technology, this textbook is written with the marine engineer in mind, particularly those studying Engineering Knowledge. The content ranges from simple measurement devices, through signal conditioning and digitisation to highly sophisticated automated control and instrumentation systems. It also includes a brand new section on electrical equipment in hazardous areas detailing hazards, gas groups, temperature classifications and types of protection including increased and intrinsic safety and encapsulation, and up-to-date material on the new generation of Liquefied Natural Gas carriers, SMART sensors and protocols, as well as computer based systems.

The job of any reservoir engineer is to maximize production from a field to obtain the best economic return. To do this, the engineer must study the behavior and characteristics of a petroleum reservoir to determine the course of future development and production that will maximize the profit. Fluid flow, rock properties, water and gas coning, and relative permeability are only a few of the concepts that a reservoir engineer must understand to do the job right, and some of the tools of the trade are water influx calculations, lab tests of reservoir fluids, and oil and gas performance calculations. Two new chapters have been added to the first edition to make this book a complete resource for students and professionals in the petroleum industry: Principles of Waterflooding, Vapor-Liquid Phase Equilibria.

Volume four of Reed's Marine Engineering Series" is based on the Naval Architecture syllabuses for the Certificate of Competency for Class 2 and Class 1 Marine Engineer Officers, administered on behalf of the UK Department of Transport and SCOTVEC. Explanatory diagrams and worked examples should assist the student to assimilate the principles, and typical exam questions should test knowledge."

Reeds Vol 1: Mathematics for Marine Engineers A&C Black

* Useful to engineers in any industry * Extensive references provided throughout * Comprehensive range of topics covered * Written with practical situations in mind A plant engineer is responsible for a wide range of industrial activities, and may work in any industry. The breadth of knowledge required by such professionals is so wide that previous books addressing plant engineering have either been limited to certain subjects or cursory in their treatment of topics. The Plant Engineer's Reference Book is the first volume to offer complete coverage of subjects of interest to the plant engineer. This reference work provides a primary source of information for the plant engineer. Subjects include selection of a suitable site for a factory and provision of basic facilities (including boilers, electrical systems, water, HVAC systems, pumping systems and floors and finishes). Detailed chapters deal with basic issues such as lubrication, corrosion, energy conservation, maintenance and materials handling as well as environmental considerations, insurance matters and financial concerns. The authors chosen to contribute to the book are experts in their various fields. The Editor has experience of a wide range of operations in the UK, other European countries, the USA, and elsewhere in the world. Produced with the backing of the Institution of Plant Engineers, this work is the primary source of information for plant engineers in any industry worldwide.

This book covers the development of high-order numerical methods for the simulation of incompressible fluid flows in complex domains.

This book covers the principal topics in thermodynamics for officer cadets studying Merchant Navy Marine Engineering Certificates of Competency (CoC) as well as the core syllabi in thermodynamics for undergraduate students in marine engineering, naval architecture and other marine technology related programmes. The book provides a firm foundation in the principals of thermodynamics, decoding the fundamental science and physics applied to marine technology, covering examples of modern machines and practice to reflect current legislation and syllabi. The new edition will provide worked examples and test exam questions, corresponding to current Merchant Navy Qualifications as well as university-style examinations. Where relevant, reference will be made to self-study computer exercises for undertaking multiple calculations in common software, e.g. MS Excel. This key textbook takes into account the varying needs of marine students, recognising recent changes to the Merchant Navy syllabus and current pathways to a sea-going engineering career, including National Diplomas, Higher National Diploma and degree courses.

The importance of science and technology and future of education and research are just some of the subjects discussed here.

This indispensable guide to ship stability covers topics such as flotation and buoyancy, small angle, large angle and longitudinal stability, water density effects, bilging, ship resistance, and advanced hydrostatics. Each chapter has a comprehensive list of aims and objectives at the start of the topic, followed by a check-list at the end of the topic for students to ensure that they have developed all the relevant skills before moving onto the next topic area. The book features over 170 worked examples with fully explained solutions, enabling students to work through the examples to build up their knowledge and develop the necessary key skills. The worked examples, which range in difficulty from very simple one-step solutions to SQA standard exam questions and above, are predominantly based on a hypothetical ship, with the reader supplied with extracts from a typical data book for the ship which replicates those found on real ships, enabling the reader to develop and practise real-life skills.

This textbook covers ship construction techniques and methods for all classes of Merchant Navy marine deck and engineering Certificates of Competency (CoC) as well as Undergraduate students studying Naval Architecture and Marine Engineering. It is complementary to Volume 4 (Naval Architecture) and Volume 8 (General Engineering Knowledge). Importantly, this new edition contains up-to-date information on modern shipyards, dry-docking procedures and methods of construction. Extensively illustrated, the book also includes sample examination questions with worked examples answers to aid students in their learning.

Part I: Process design -- Introduction to design -- Process flowsheet development -- Utilities and energy efficient design -- Process simulation -- Instrumentation and process control -- Materials of construction -- Capital cost estimating -- Estimating revenues and production costs -- Economic evaluation of projects -- Safety and loss prevention -- General site considerations -- Optimization in design -- Part II: Plant design -- Equipment selection, specification and design -- Design of pressure vessels -- Design of reactors and mixers -- Separation of fluids -- Separation columns (distillation, absorption and extraction) -- Specification and design of solids-handling equipment -- Heat transfer equipment -- Transport and storage of fluids.

Elementary Materials Science covers the subject of materials science with few equations; it is intended primarily for students with limited science backgrounds who are interested in materials. The book also will be useful for non-technical professionals in the materials industry.

Introduction to Marine Engineering explains the operation of all the ship's machinery, with emphasis on correct, safe operating procedures and practices at all times. Organized into 17 chapters, this book begins with an overall look at the ship. Subsequent chapters describe the various ship machineries, including diesel engines, steam turbines, boilers, feed systems, pumps, auxiliaries, deck machinery, hull equipment, shafting, propellers, steering gear, and electrical equipment. Other aspects of marine engineering, particularly, fuel oils, lubricating oils, refrigeration, air conditioning, ventilation, firefighting and safety, watchkeeping, and equipment operation, are also described. This book will be useful to anyone with an interest in ships' machinery or a professional involvement in the shipping business.

Developed to complement Reeds Vol 8 (General Engineering for Marine Engineers), this indispensable textbook comprehensively covers the motor engineering syllabus for marine engineering officer cadets. Starting with the theoretical and practical thermodynamic operating cycles, the book is structured to give a description of the engines and components used to extract energy from fossil fuels and achieve high levels of efficiency. Accessibly written and clearly illustrated, this book is the only guide available for marine engineering students focusing on the knowledge needed for passing the motor engineering certificate of Competency (CoC) examinations. This new edition reflects all developments within the discipline and includes updates and additions on, amongst other things: · Engine emissions and control engineering · Fuel injection · Starting and reversing · Ancillary supply systems · Safety and the environment Plus updates to many of the technical engineering drawings.

This volume presents a leading contribution to the substantive arena relating to homicide in the criminal law. In broad terms, the ambit of homicide standardisations in extant law is contestable and opaque. This book provides a logical template to focus the debate. The overall concept addresses three specific elements within this arena, embracing an overarching synergy between them. This edifice engages in an examination of UK provisions, and in contrasting these provisions against alternative domestic jurisdictions as well as comparative contributions addressing a particularised research grid for content. The comparative chapters provide a wider background of how other legal systems treat a variety of specialised issues relating to homicide in the context of the criminal law. The debate in relation to homicide continues apace for academics, practitioners and within the criminal justice system. Having expert descriptions of the wider issues surrounding the particular discussion and of other legal systems' approaches serves to stimulate and inform that debate. This collection will be a major source of reference for future discussion.

Mixed Signal Test Methods Demystified is a less theoretical, less mathematical, and more applications-oriented approach than other books available on the topic. In effect, this book will give readers a "just in time" understanding of the essentials of mixed signal testing techniques. Emphasis will be on commonly used devices and systems (such as PLLs and DSP) that engineers encounter in their daily tasks. Sampling theory is covered in detail, as this is the foundation for understanding all mixed signal testing technique, and readers will have a strong intuitive grasp of this topic after finishing this book. Baker aims to develop an intuitive understanding of mixed signal testing that minimizes the mathematics required and is germane to the sort of testing requirements found in typical engineering situations. *Takes a less theoretical, less mathematical, and more applications-oriented approach *Emphasizes commonly used devices and systems that engineers encounter in their daily tasks *Aims to develop an intuitive understanding of mixed signal testing

No engineering structure can be built on the ground or within it without the influence of geology being experienced by the engineer. Yet geology is an ancillary subject to students of engineering and it is therefore essential that their training is supported by a concise, reliable and usable text on geology and its relationship to engineering. In this book all the fundamental aspects of geology are described and explained, but within the limits thought suitable for engineers. It describes the structure of the earth and the operation of its internal processes, together with the geological processes that shape the earth and produce its rocks and soils. It also details the commonly occurring types of rock and soil, and many types of geological structure and geological maps. Care has been taken to focus on the relationship between geology and geomechanics, so emphasis has been placed on the geological processes that bear directly upon the composition, structure and mechanics of soil and rocks, and on the movement of groundwater. The descriptions of geological processes and their products are used as the basis for explaining why it is important to investigate the ground, and to show how the investigations may be conducted at ground level and underground. Specific instruction is provided on the relationship between geology and many common activities undertaken when engineering in rock and soil.

This exciting new edition covers the core subject areas of arithmetic, algebra, mensuration in 2D and 3D, trigonometry and geometry, graphs, calculus and statistics and probability for Marine Engineering students for the Merchant Navy OOW qualification. Initial examples have been designed purely to practise mathematical technique and, once these skills have been mastered, further examples focus on engineering situations where the appropriate skills may be utilised. The practical questions are primarily from a marine engineering background but questions from other disciplines, such as electrical engineering, will also be covered, and reference made to the use of advanced calculators where relevant.

Divided into three sections, the book covers the complete syllabus for Electrotechnology Officers as specified by the Association of Marine Electronic and Radio Colleges (AMERC), with a series of worked examples and self-study questions to assist in student understanding. The book introduces basic electronics, the theory of how a range of navigational aids works, and radio communications including GMDSS. Fault find to component and sub system level is also included. Importantly, this is the first textbook to be aimed primarily at ETOs, covering the changes to the STCW 2010. An essential buy.

The book covers the principal topics in applied mechanics for professional trainees studying Merchant Navy Marine Engineering Certificates of Competency (CoC) as well as the core syllabi in applied mechanics for undergraduates studying for BSc, BEng and MEng degrees in marine engineering, naval architecture and other marine technology related programmes. The revised version takes into account the need of these students, recognising recent changes to the Merchant Navy syllabus and current pathways to a sea-going engineering career, including National diplomas, Higher National Diploma and degree courses. Basic principles are dealt with, beginning at a fairly elemental stage, with this new edition applying the underlying principles to a shipping environment. Each chapter has fully worked examples interwoven into the text, with test examples set at the end of each chapter. Other revisions include examples reflecting modern machines and practice, current legislation and current syllabi.

This indispensable guide to ship stability covers essential topics such as flotation and buoyancy, small angle, large angle and longitudinal stability, water density effects, bilging, ship resistance, and advanced hydrostatics. Each chapter has a comprehensive list of aims and objectives at the start of the topic, followed by a checklist at the end of the topic for students to ensure that they have developed all the relevant skills before moving onto the next topic area. The book features over 170 worked examples with fully explained solutions, enabling students to work through the examples to build up their knowledge and develop the necessary key skills. The worked examples, which range in difficulty from very simple one-step solutions to SQA standard exam questions and above, are predominantly based on a hypothetical ship. The reader is supplied with extracts from a typical data book for the ship which replicates those found on actual ships, enabling the reader to develop and practise real-life skills. This edition has been fully updated in line with the recently changed rules and regulations around ship stability and the updated national exam syllabus. Updates include corrections and clarifications to worked examples, new text on damaged stability and probabilistic stability, extra content on hydrostatic forces and centres of pressure, and extra content on stability information for small craft.

This textbook covers the theoretical, fundamental aspects of naval architecture for students preparing for the Class 2 and Class 1 Marine Engineer Officer exams. It introduces the basic foundation themes within naval architecture, (hydrostatics, stability, resistance and powering), using worked examples to show how solutions should be presented for an exam. The topics are ordered in a manner of a typical taught module, to aid the use of the book by lecturers as a compliment to a course. Importantly, this updated edition contains updated text and figures in line with modern practice, including an update of many of the figures to three-dimensional diagrams, and a new section on computer software for naval architecture. The book also includes sample examination questions with worked examples answers to aid students in their learning.

This book provides a comprehensive coverage of the basic theoretical work required by marine engineering officers and electrotechnical officers (ETOs), putting into place key fundamental building blocks and topics in electrotechnology before progressing to more complex topics and electromagnetic systems. Revisions will include important new material on emergent technology such as image intensifiers, the increased maritime use of LEDs, examples of ship systems including power distribution systems, and references to modern ship systems, eg. GPS, ECDIS, Radar, AIS, Comms outfits, etc. This essential text offers a truly rigorous approach to the key topic of electrotechnology.

Marine Auxiliary Machinery, Seventh Edition is a 16-chapter text that covers the significant advances in marine auxiliary machinery relevant to the certification of competency examinations. The introductory chapters deal with the basic components of marine machineries, such as propulsion system, heat exchanger, valves, and pipelines. The succeeding chapters describe the pumps and pumping system, specifically the tanker and gas carrier cargo pumps. Considerable chapters are devoted to the operation of machinery's major components, including the propeller shaft, steering gear, auxiliary power, bow thrusters, and stabilizers. Other chapters consider the refrigeration, heating, ventilation, and air conditioning systems. The final chapters tackle the safety system of marine auxiliary machinery, particularly the fire protection, safety, instrumentation, and control systems. This book will prove useful to marine and mechanical engineers.

Images in medieval and early modern treatises on medicine, pharmacy, and natural history often confound our expectations about the functions of medical and scientific illustrations. They do not look very much like the things they purport to portray; and their actual usefulness in everyday medical practice or teaching is not obvious. By looking at works as diverse as herbals, jewellery, surgery manuals, lay health guides, cinquecento paintings, manuscripts of Pliny's Natural History, and Leonardo's notebooks, *Visualizing Medieval Medicine and Natural History, 1200-1550* addresses fundamental questions about the interplay of art and science from the thirteenth to the mid-sixteenth century: What counts as a medical illustration in the Middle Ages? What are the purposes and audiences of the illustrations in medieval medical, pharmaceutical, and natural history texts? How are images used to clarify, expand, authenticate, and replace these texts? How do images of natural objects, observed phenomena, and theoretical concepts amplify texts and convey complex cultural attitudes? What features lead us to regard some of these images as typically 'medieval' while other exactly contemporary images strike us as 'Renaissance' or 'early modern' in character? Art historians, medical historians, historians of science, and specialists in manuscripts and early printed books will welcome this wide-ranging, interdisciplinary examination of the role of visualization in early scientific inquiry.

Developed to complement Reeds Vol. 12 (Motor Engineering for Marine Engineers), this textbook is key for all marine engineering officer cadets. This new edition has been extensively updated to include the latest equipment, practices and trends in marine engineering, as well as incorporating the 2010 Manila Amendments, particularly relating to Management. Accessibly written and clearly illustrated, this book is the core guide focusing on the knowledge needed for passing the engineering certificate of Competency (CoC) examinations. This key textbook takes into account the varying needs of students studying motor engineering, recognising recent changes to the Merchant Navy syllabus and current pathways to a sea-going engineering career, including National diplomas, Higher National Diploma and degree courses. An essential buy for any marine engineering student.

Within the marine and offshore industry, there is a clear and growing need for increased training and education on the use of electrical power systems. The number of electrical plant and appliances now in service has grown at an alarming rate in recent years, as has the amount of electrical power generated and utilised on board. Large passenger ships now carry as many electrical officers as marine engineers, and electrical propulsion is now in common use by LNG carriers, small parcel tankers, oil tankers, ferries, offshore support, the navy, fleet auxiliary, cable layers and cruise ships. A number of shipping companies now award the Chief Electro Technical Officer the equivalent rank to the ship's master and Chief Engineer. These developments have resulted in the establishment of a Foundation Degree programme for Electro Technical Officers and the current development of full degree programmes. As such, a targeted textbook for students on the subject is required. As with all titles in the Reeds Marine Engineering Series, this book will be written in clear, accessible language, so as to be of use to all students and particularly those for whom English isn't their first language. Technical drawings and diagrams will be used throughout and each chapter will be accompanied by example examination questions.

This exciting new edition covers the core subject areas of arithmetic, algebra, mensuration in 2D and 3D, trigonometry and geometry, graphs, calculus and statistics and probability for Marine Engineering students. Initial examples have been designed purely to practise mathematical technique and, once these skills have been mastered, further examples focus on engineering situations where the appropriate skills may be utilised. The practical questions are primarily from a marine engineering background but questions from other disciplines, such as electrical engineering, will also be covered, and reference made to the use of advanced calculators where relevant.

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