Reeds Marine Engineering For Deck Officers

Reeds Marine Surveying is aimed at students of marine surveying, professional marine surveyors, boatyard operators and technically-minded boat owners, and covers the latest marine surveying technology, including analysis of the mechanical behaviour of materials, failure analysis, stress concentration, fatigue and fracture, corrosion, wood-damaging organisms, polymer chemistry, and the composition and characteristics of common plastics, metal, alloys and composite materials. This new edition expands its scope to include coverage of surveying topics relevant to ships and class surveying and includes more examples of common problems and the practical elements of surveying, as well as be updated throughout in line with technological developments, guidelines and best practice. Reeds Marine Surveying has been in print for over twenty years and excellently serves the community of marine surveyors by providing technically robust presentations of this discipline. It extends the inquiry of inspection and safety beyond anecdote and into foundation principles and technologies.

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.

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.

Marine Auxiliary Machine: Sixth Edition explains the correct operation and maintenance of marine auxiliary machinery. The book discusses topics such as the arrangements of the engine and boiler room; pipes and fittings and pumps; compressors and separators; and heat exchangers - its types, control of temperature, and maintenance. The book also talks about other machineries such as diesel engines, steam turbines, propellers, and gears; refrigeration and air conditioning systems; deck machinery; and safety equipment. The text is recommended for engineers in ships who would like to know more about the auxiliary machines onboard ships, how they are operated, and the principles behind them.

First book to give an insight into a growing area of interest - stealth warship technology - which is crucial for future developments in warship construction. It demonstrates the importance of materials used in warship construction and how this influences all of a naval platform's design parameters. Stealth technology is now considered a critical component within warship design, with interest in the concept of stealth increasing around the globe as naval forces adapt to new challenges. Many new developing nations are now implementing their first generation of stealth technology military hardware. This exciting book explores the full extent of threats to warships and thus the transformational change in naval architecture to incorporate these modern stealth technologies. Discussing the history of stealth technology, with references to well-known aircraft, ships and events in military history, the book also provides readers with a unique opportunity to develop an understanding of the specialist skills required in this naval sector. This is an essential read for anyone interested in stealth design and the issues involved in this evolving technology.

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.

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.

Reeds Introductions: Essential Sensing and Telecommunications for Maritime Applications covers all fundamental and essential theoretical

maritime physics principles which underpin modern marine sensors and telecommunications devices as needed by marine users such as: Navy, Coastguard, Merchant Shipping and users of pleasure craft. For safety at sea, it is vital that maritime users have at least a basic understanding of the key concepts upon which many essential modern sea-going sensors and communications devices now operate. Knowledge regarding electromagnetic waves and electromagnetic devices is an established merchant navy sea service requirement, particularly for the Standards in Training and Certification in Watchkeeping (STCW95) qualification in various Maritime Coastguard Agency exams, but it is also a practical matter for the amateur as well. This vital introductory book is written as simply as possible to educate an increasing number of maritime users who wish to become familiar and competent with the latest technologies as well as a growing number of overseas students for whom English is not their first language. This volume provides a comprehensive study of maritime sensors and telecommunications principles and provides a firm foundation prior to reading and studying textbooks in the Reeds Marine Engineering series. Students having read this easy-to-read volume will be better prepared for the more in depth study of that series.

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.

Understanding ship stability is critical for all maritime students or professionals who are studying for a deck or engineering certificate of competency, or seeking promotion to a higher rank within any branch of the merchant marine or Navy. The sixth edition of the now classic 'Ship Stability' provides a comprehensive introduction to all aspects of ship stability and ship strength, squat, interaction and trim, materials stresses and forces. * The market leading ship stability text, widely used at sea and on shore * New content inclues coverage of now-mandatory double-skin tankers and fast ferries * Meets STCW (Standards of Training, Certification & Watchkeeping) requirements and includes self-examination material: essential reading for professionals and students alike

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.

Reeds Maritime Meteorology is written primarily for serving and trainee deck officers, those studying for certificates of competency in merchant ships and for fishermen. It provides descriptions of the elements and forces which contribute to maritime meteorology and the principles which govern them, and deals specifically with: weather forecasting at sea and the use of fax, navtex and saltellite technology ocean currents and swell tropical revolving storms the development and distribution of sea ice weather routeing passage planning the management and care of cargo in heavy weather There is an extensive glossary, revision questions at the end of each chapter, and a fold-out chart of ocean currents as well as numerous explanatory photos and diagrams. For this revised edition, the content and website addresses have been updated. 'Commended to anyone who requires a clear and authoritative introduction to the subject' Marine Engineers Review 'A splendid volume...a comprehensive and serious weather book' The Seafarer

This book was compiled to assist students studying for the Department of Trade Engineering Drawing examination for a First and Second Class Certificate of Competency. It will also benefit anyone studying for the Engineering Knowledge paper in Part B of the exam. The DoT requirements differ from standard drawing office practice. In order to determine the engineering knowledge of a candidate, a general assembly drawing is required. Details of the drawing are given in the form of dimensioned pictorial views of the individual components for an item of marine engineering machinery. The candidate's skill as a draughtsman is judged from his attempt at the drawing. It is expected that the particular piece of machinery could be manufactured from the drawing, which necessitates inserting dimensions on a general assembly drawing - a practice not common elsewhere. This established textbook will assist students through the course.

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 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.

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.

This second edition deals comprehensively with all aspects of a ship's machinery from propulsion and steering to deck machinery and electrical equipment with a strong emphasis upon correct and safe procedures. Material has been added and revised to reflect the greater weight now being placed upon the cost-effective operation of ships; in terms of greater equipment reliability, more fuel-

efficient engines, the ever-increasing shift towards automatically operated machinery, and the need for fewer engineering crew. This is an invaluable guide for professionals but equally covers the requirements for Class 4 and Class 3 Engineer's Certificates of Competency, the first two years of the Engineer Cadet Training Scheme, and the Engineering Knowledge syllabus for the Master's Certificate.

Reeds Introductions: Principles of Earth Observation for Marine Engineering Applications covers the fundamental earth-observation concepts that underpin all space-based terrestrial and maritime remote sensing methods. Satellite-based earth observation provides key weather and environmental information to all nations, including key maritime users such as navy, coastguard and merchant vessels. The application and understanding of electromagnetic wave-based devices and sensors is an established merchant sea service requirement, found in the Standards in Training and Certification in Watchkeeping (STCW95) qualification and various Maritime Coastguard Agency exams. It is vital that maritime and land-based users have a basic understanding of the concepts upon which these essential earth-observation systems now operate. The book is written as simply as possible to support the growing numbers of overseas students for whom English is not their first language. It provides a firm foundation prior to reading and studying of the Reeds Marine Engineering series, and is complementary to other volumes in the Introductions series. Maritime and land-based students and scientists having read this easy-to-read volume will be better prepared for more in-depth study.

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.

Reeds Marine Surveying is an expanded and updated new edition of the author's Handbook of Marine Surveying. Aimed at students of marine surveying, professional marine surveyors, boatyard operators and technically-minded boat owners, it covers the latest marine surveying technology, including analysis of the mechanical behaviour of materials, failure analysis, stress concentration, fatigue and fracture, corrosion, wood-damaging organisms, polymer chemistry, and the composition and characteristics of common plastics, metal, alloys and composite materials. There is also a useful survey checklist that provides practical techniques and hints for conducting a survey. 'A mass of information on different materials used in boatbuilding plus their failure mechanisms... an excellent book' www.nonstopyacht.com 'A concise collection of practical, theoretical and regulatory information' Sailing 'Now it all makes sense!' William F Buckley

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.

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 will provide 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 project is aimed at those with no prior knowledge: None at all. Aiming for 'simple is best' and the KISS principle ('keep it simple stupid') means that everything in this book is 'simplified for clarity'. The diagrams will not be over-dense blueprints and, wherever I make a grand sweeping statement, I will completely omit to mention any exceptions to the rule. I'll do my best not to use big words, abbreviations, or use any numbers. To keep us on track, I've put 'look up watchwords' at the end of each part. These are intended to be entered into your favorite internet search engine. By providing these sign posts, those who want more information can go off and get it, whilst the rest of us carry on regardless. With my excuses made, I hope you get as much out this informal introduction to marine engineering as I got from writing it. My only real promise is any revenue made from this tome shall be used exclusively for foolish, unwise and meaningless adventures.

Principles of Yacht Design has established itself as the standard book on the subject for practising designers, naval architecture students, discerning boat owners as well as the boatbuilding industry as a whole. The fourth edition is completely revised and expanded and follows the design from scratch of a completely new yacht including all new computer-generated explanatory illustrations. As such, it examines every aspect of the process of yacht and powerboat design. The authors have used a newly designed 41 foot performance cruiser to demonstrate the practical application of yacht design theory. Beginning with the yacht's specifications, the authors examine the vital topics of aero and hydrodynamics and conclude with practical matters such as the layout of the cockpit, deck and cabin, and provide a complete weight calculation for the boat. 'This book is deeply fascinating . . . a must.' Classic Boat 'The standard book on the subject for practising designers, naval architecture students, discerning boat owners and the boatbuilding industry as a whole.' Yachting Life (May 2007) 'A definitive work on yacht design.' Cruising

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
Introduction to concepts of ship stability, resistance and powering relevant to marine professionals, including naval architects and merchant navy deck and engineering officers.