

# Reeds Vol 13 Ship Stability Powering And Resistance 1st Edition

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. 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.

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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.

Introduction to concepts of ship stability, resistance and powering relevant to marine professionals, including naval architects and merchant navy deck and engineering officers. Reeds Marine Insurance is aimed at all those who have little or no experience of marine or any other form of insurance working within the maritime transport field. Ideal for cargo operators, port managers, ship brokers, and shipping transport managers, it will also be invaluable for students on maritime law, sea transport and shipping courses and for those studying marine insurance as part of a maritime management course. It is designed to take the reader from the basics through to a competent level of understanding on the subject. It includes the main principles underlying marine insurance the 1983, 1995 and 2003 hull clauses fully explained together with war risks insurance a complete outline of the cover given by P and I clubs, set out in an easy to read format an in-depth look at cargo insurance and the standard clauses the principles of General Average includes

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legal precedents.

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.

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,

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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 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

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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.

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.

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

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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 Liquified Natural Gas carriers, SMART sensors and protocols, as well as computer based systems.

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

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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 includes 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

Fully revised and updated edition of this classic textbook for marine engineers covering all areas of naval architecture

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

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semiconductor physics devices including the laser, as well as discussions of binary or digital theory. This book offers an introduction into quantum machine learning research, covering approaches that range from "near-term" to fault-tolerant quantum machine learning algorithms, and from theoretical to practical techniques that help us understand how quantum computers can learn from data. Among the topics discussed are parameterized quantum circuits, hybrid optimization, data encoding, quantum feature maps and kernel methods, quantum learning theory, as well as quantum neural networks. The book aims at an audience of computer scientists and physicists at the graduate level onwards. The second edition extends the material beyond supervised learning and puts a special focus on the developments in near-term quantum machine learning seen over the past few years.

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

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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.

Ship management has constantly had to evolve to take into account the advancements in technology as well as the demands of the shipping industry. Having internet access and email on board ship has meant that the ship manager has to possess certain sets of skills to function effectively in the post, including computer literacy. The emergence of large multi-national ship management companies has also changed how business is conducted and this in turn means that the ship manager and tiers of management within the organization have had to evolve to cope with the demands of working with a multi-national workforce. Furthermore, since the mid-1980s there has been an ever expanding raft of legislation that is more restrictive for companies to meet, and a shrinking of profit margins has seen a shift in how companies are required to operate to survive. This book addresses the demands of 21st century ship management with the focus of the book as much about the people who manage ships as about the theory and practice of ship management.

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.

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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.

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.

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

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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 International Code on Intact Stability 2008 (2008 IS Code), presents mandatory and recommendatory stability criteria and other measures for ensuring the safe operation of ships, to minimize the risk to such ships, to the personnel on board and to the environment. The 2008 IS Code took effect on 1 July 2010. The 2008 IS Code features: a full update of the previous IS Code; criteria based on the best state-of-the-art concepts available at the time they were developed, taking into account sound design and engineering principles and experience gained from operating ships; influences on intact stability such as the dead ship condition, wind on ships with large windage area, rolling characteristics and severe seas. This publication also presents Explanatory Notes to the 2008 IS Code, intended to provide administrations and the shipping industry with specific guidance to assist in the uniform interpretation and application of the intact stability requirements of the 2008 IS Code.

This book addresses various aspects of ship construction, from ship types and construction materials, to welding technologies and accuracy control. The contents of the book are logically organized and divided into twenty-one chapters. The book covers structural arrangement with longitudinal and transverse framing systems based on the service load, and explains basic structural elements like hatch side girders, hatch end beams, stringers, etc. along with structural subassemblies like floors, bulkheads, inner bottom, decks and shells. It presents in detail double bottom construction, wing tanks & duct keels, fore & aft end structures, etc.,

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together with necessary illustrations. The midship sections of various ship types are introduced, together with structural continuity and alignment in ship structures. With regard to construction materials, the book discusses steel, aluminum alloys and fiber reinforced composites. Various methods of steel material preparation are discussed, and plate cutting and forming of plates and sections are explained. The concept of line heating for plate bending is introduced. Welding power source characteristics, metal transfer mechanisms, welding parameters and their effects on the fusion zone, weld deposit, and weld bead profile are discussed in detail. Various fusion welding methods, MMAW, GMAW, SAW, Electroslag welding and Electrogas welding and single side welding are explained in detail. Friction stir welding as one of the key methods of solid state welding as applied to aluminum alloys is also addressed. The mechanisms of residual stress formation and distortion are explained in connection with stiffened panel fabrication, with an emphasis on weld induced buckling of thin panels. Further, the basic principles of distortion prevention, in-process distortion control and mitigation techniques like heat sinking, thermo-mechanical tensioning etc. are dealt with in detail. In its final section, the book describes in detail various types of weld defects that are likely to occur, together with their causes and remedial measures. The nondestructive testing methods that are most relevant to ship construction are explained. Lastly, a chapter on accuracy control based on statistical principles is included, addressing the need for a suitable mechanism to gauge the ranges of variations so that one can quantitatively target the end product accuracy. This book covers the principal topics in thermodynamics for officer cadets studying Merchant Navy Marine Engineering Certificates of

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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. 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

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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.

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." 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

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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. The use of additives in food is a dynamic one, as consumers demand fewer additives in foods and as governments review the list of additives approved and their permitted levels. Scientists also refine the knowledge of the risk assessment process as well as improve analytical methods and the use of alternative additives, processes or ingredients. Since the first edition of the Food Additives Databook was published, there have been numerous changes due to these developments and some additives are no longer permitted, some have new permitted levels of use and new additives have been assessed and approved. The revised second edition of this major reference work covers all the "must-have" technical data on food additives. Compiled by food industry experts with a proven track record of producing high quality reference work, this volume is the definitive resource for technologists in small, medium and large companies, and for workers in research, government and academic institutions. Coverage is of Preservatives, Enzymes, Gases, Nutritive additives, Emulsifiers, Flour additives, Acidulants, Sequestrants, Antioxidants, Flavour enhancers, Colour, Sweeteners, Polysaccharides, Solvents.

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Entries include information on: Function and Applications, Safety issues, International legal issues, Alternatives, Synonyms, Molecular Formula and mass, Alternative forms, Appearance, Boiling, melting, and flash points, density, purity, water content, solubility, Synergists, Antagonists, and more with full and easy-to-follow-up references. Reviews of the first edition: "Additives have their advantages for the food industry in order to provide safe and convenient food products. It is therefore essential that as much information as possible is available to allow an informed decision on the selection of an additive for a particular purpose. This data book provides such information - consisting of over 1000 pages and covering around 350 additives. This data book does provide a vast amount of information; it is what it claims to be! Overall, this is a very useful publication and a good reference book for anyone working in the food and dairy industry."

—International Journal of Dairy Technology, Volume 59 Issue 2, May 2006 "This book is the best I have ever seen ... a clear winner over all other food additive books .... a superb edition." —SAAFOST (South African Association for Food Science and Technology)

This book deals with ship design and in particular with methodologies of the preliminary design of ships. The book is complemented by a basic bibliography and five appendices with useful updated

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charts for the selection of the main dimensions and other basic characteristics of different types of ships (Appendix A), the determination of hull form from the data of systematic hull form series (Appendix B), the detailed description of the relational method for the preliminary estimation of ship weights (Appendix C), a brief review of the historical evolution of shipbuilding science and technology from the prehistoric era to date (Appendix D) and finally a historical review of regulatory developments of ship's damage stability to date (Appendix E). The book can be used as textbook for ship design courses or as additional reading for university or college students of naval architecture courses and related disciplines; it may also serve as a reference book for naval architects, practicing engineers of related disciplines and ship officers, who like to enter the ship design field systematically or to use practical methodologies for the estimation of ship's main dimensions and of other ship main properties and elements of ship design.

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

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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. 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. Ship Construction is a comprehensive text for students of naval architecture, ship building and construction, and for professional Naval Architects and Marine Engineers. Covers the complete ship construction process including the development of ship types, materials and strengths of ships, welding and cutting, shipyard practice, ship

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structure and outfitting, All the latest developments in technology and shipyard methods, including a new chapter on computer-aided design and manufacture, Essential for students and professionals, particularly those working in shipyards, supervising ship construction, conversion and maintenance. Book jacket. A marine engineer will need to have a broad background of knowledge within several aspects of marine design and operations. These aspects relate to the design of facilities for offshore applications and evaluation of operational conditions for marine installation and modification/maintenance works. Such needs arise in the marine industries, in the offshore oil and gas industry as well as in the offshore renewable industry. Developed from knowledge gained throughout the author's engineering career, this book covers several of the themes where engineers need knowledge and also serves as a teaser for those who will go into more depth on the different thematic aspects discussed. Details of qualitative risk analysis, which is considered an excellent tool to identify risks in marine operations, are also included. The book is the author's attempt to develop a text for those in marine engineering science who like a practical and solid mathematical approach to marine engineering. It is the intention that the book can serve as an introductory textbook for master degree courses in marine sciences and be of inspiration for teachers who will extend the course into specialisation courses on stability of vessels, higher order wave analysis, nonlinear motions of vessels, arctic offshore engineering, etc. The book could also serve as a handbook for PhD students

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and researchers who need a handy introduction to solving marine technology related problems.

This classic book in the Kemp and Young series has been fully revised and updated by David J Eyres, author of the well-known Butterworth-Heinemann title "Ship Construction," and will prove indispensable to the student reader. The contents cover, in numerous fully illustrated items, shipyard practices, principles of construction methods, the design and construction of the various component parts of the ship, and the overall arrangement of different types of merchant and passenger vessels.

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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