

Marine Electrical Practice Marine Engineering Series

Marine Electrical Practice Marine Engineering Series Elsevier
Marine Engineering Series: Marine Control Practice deals with the instrumentation and its associated control systems that are found onboard ships. The book covers topics such as the measuring instruments and control signals for different parameters; system analysis; process and kinetic control systems; and commercially available equipment. Also covered in the book are correcting units such as actuators and valves; the control systems for boilers, turbines, auxiliary equipment; and control involving computers. The text is recommended for those who need to complete the Certificates of Competency for Marine Engineers, including Extra First Class. The book will also be beneficial to offshore engineers.

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

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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.

A standard work on the installation, maintenance, and operation of marine electrical equipment since its first publication in 1957 as a guide for engineers preparing for competency exams and a reference for seagoing engineers and electricians. Changes since the 5th edition (1981) include new or expanded discussions of programmable electronic systems, protection and discrimination, impressed cathodic protection, and other recent technological advances and changes in standards. Annotation copyrighted by Book News, Inc., Portland, OR

Marine Insurance: Law and Practice, Second Edition, continues to provide the most comprehensive and integrated account of the English law and practice of marine insurance. It provides readers with a fresh and up-to-date review of the modern law in the light of traditional principles and rules of underlying commercial law, and the specific statutory rules of marine insurance as interpreted by case law, as moderated in practice by market practices and standard form marine insurance clauses. Francis Rose clarifies the law's underlying framework of principles and illustrates how it works in common contractual situations, explaining how the different components of the law interact. The new edition has been updated to incorporate:

- the most recent case law: there have been some very important judgments handed down since the book first published, including: *The Cendor MOP*, *The Silva*, *The Resolute* and *The Marina Iris*
- the

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implications of the introduction of: Institute Cargo Clauses 2009, the effect of the Gambling Act 2005 and the Third Parties (Rights Against Insurers) Act 2010 Law Commission reform proposals The book explores in detail the following areas: • the nature of insurance • insurable interest • the insurance contract • the premium • insured risks • marine risks • exclusions • losses • claims • subrogation • double insurance

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.

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,

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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.

Since its first appearance in 1950, Pounder's Marine Diesel Engines has served seagoing engineers, students of the Certificates of Competency examinations and the marine engineering industry throughout the world. Each new edition has noted the changes in engine design and the influence of new technology and economic needs on the marine diesel engine. This eighth edition retains the directness of approach and attention to essential detail that characterized its predecessors. There are new chapters on monitoring control systems and governor systems, gas turbines and safety aspects of engine operation. Important developments such as the latest diesel-electric LNG carriers that will soon be in operation. After experience as a seagoing engineer with the British India Steam Navigation Company, Doug Woodyard held editorial positions with the Institution of Mechanical Engineers and the Institute of Marine Engineers. He subsequently edited The Motor Ship journal for eight years before becoming a freelance editor specializing in shipping, shipbuilding and marine engineering. He is currently technical editor of Seatrade, a contributing editor to Speed at Sea, Shipping World and Shipbuilder and a technical press consultant to Rolls-Royce Commercial Marine. * Designed to reflect the recent changes to SQA/Marine and Coastguard Agency Certificate of Competency exams. Careful organisation of the new edition enables readers to access the information they require * Brand new chapters focus on

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monitoring control systems and governor systems, gas turbines and safety aspects of engine operation * High quality, clearly labelled illustrations and figures

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.

Information Engineering for Port and Marine Environments provides the technology of tidal level prediction, the technology of oil spill early-warning, and the research for the theory of storm sedimentation, the construction for monitor ability, the early-warning service for numerical simulation and operational, which involves many aspects such as theoretical research, system establishment, and application of information technology, et al. Because of the certain prospective and advancement of multiple work, it will play a positive role in promoting the related technology of the field. There are several of important offshore ports in China, such as Tianjin port, Yangshan Port, Ningbo-Zhoushan port, Huanghua port et al., most of them are located in the coast of muddy and muddy silty, and the depth of water is shallow, the sediment deposition is serious, the large ship is operated by tide. In order to sufficiently keep the rapid and stable economic growth in bay, estuary and delta, guarantee the security of port, channel, maritime, oceanic engineering and resource development of oil and gas, and better escort for the

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social economy activities, it is essential to provide the information service of sediment and ocean hydrometeorology with wide coverage, and forecasting and warning information. It is all the latest research results in the book, which involves many fields such as physical oceanography, meteorology, biology, chemistry, geology, environment, transportation and law and so on. The development of information assurance and prediction system for port shipping and ocean environment is a huge and arduous project. It is too hasty to finish the book, due to the limited knowledge of the author, the carelessness is unavoidable, cordially invites the readers to point out. Features: An entire system to forecast the port shipping and ocean environment information is proposed, including what is the port shipping and ocean environment information. The concept of port shipping and ocean environment data integration is presented, and the essential modules are built for the ocean dynamics model. The high performance port shipping and ocean environment data processing system is constructed, and the model dataset and geographic information is obtained to build the basic database. The application of information assurance technology for port shipping and ocean environment is conducted at Tianjin port and Yangshan Port. This book is meant for senior undergraduates and postgraduate students in the fields of geoinformatics, Port engineering and Marine engineering. Engineers and technicians in the related fields can also use it for reference.

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,

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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.

The Book has been thoroughly revised, keeping in mind the rapid technological advances in this mammoth industry and also the feedback received from various quarters. Relevant extracts from current SOLAS, IACS, Lloyd's Register, DNV and ABS Rules, have been included with permission. However, these must be used only for academic purposes. Relevant current documents onboard ships must be referred to, for the purpose of complying with Classification Societies' and other Statutory Requirements.

Marine Systems Identification, Modeling and Control is a concise, stand-alone resource covering the theory and practice of dynamic systems and control for marine engineering students and professionals. Developed from a distance learning CPD course on marine control taught by the authors, the book presents the essentials of the subject, including system representation and transfer, feedback control and closed loop stability. Simulation code and worked examples are provided for both Scilab and MATLAB, making it suitable for both those without access to expensive software and those using MATLAB in a professional setting. This title considers the key topics without superfluous detail and is illustrated with marine industry examples. Concise and practical, covering the relevant theory without excessive detail. Industry-specific examples and applications for marine engineering students and professionals. Clearly presents key topics of the subject, including system representation and

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transfer, feedback control and closed loop stability, making it ideal for self-study or reference Simulation code and worked examples using Scilab and MATLAB provided on the book's companion website

Marine Engineering Series: Marine Electrical Practice, Sixth Edition focuses on changes in the marine industry, including the application of programmable electronic systems, generators, and motors. The publication first ponders on insulation and temperature ratings of equipment, protection and discrimination, and AC generators. Discussions focus on construction, shaft-drive generators, effect of unbalanced loading, subtransient and transient reactance, protection discrimination, fault current, measurement of ambient air temperature, and basis of machine ratings. The text then examines AC switchgear, automatic voltage regulators, DC generators, and DC switchgear. Topics cover switchgear for parallel-operated generators, protection against short-circuit, field regulators and the effect of tropical temperatures, compound-wound generators, power generators, loading sharing, voltage comparison circuit, and amplifier and condition circuit. The manuscript surveys electric cables, motors, motor control gear, semiconductors, storage batteries, and battery control gear. Concerns include calculations to determine the size of battery required, types of storage batteries, rectifiers, tunnel diodes, maintenance of control gear, overload protection, insulation, sheathing, and flexible cords and cables. The publication is a dependable reference for marine engineers and researchers interested in marine engineering.

More and more sailors and powerboaters are buying and relying on electronic and electric devices aboard their boats, but few are aware of proper installation procedures or how to safely troubleshoot these devices if they go on the blink.

This book covers the general engineering knowledge required

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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

Marine Electrical Practice: 5th Edition discusses the subject of marine electrical practice and takes into consideration the revolutionary changes in the field over the past 20 years. The book covers components such as generators, switchgears, rotary amplifiers, and voltage regulators; the insulation and temperature control of different machines; the distribution of electrical power; electromagnetic compatibility; and lighting. The book also contains helpful reference materials such as graphical symbols related to ship diagrams, organizations concerned with ships and shipbuilding, and units of measurement. The text is useful for nautical engineers and electrical engineers involved in offshore work, as it serves as both a guide and an update in the field of marine electrical practice.

Marine and Offshore Corrosion describes the principles of effective corrosion control treatments in marine environments, with emphasis on economic solutions to corrosion. The book explains chemical or electrochemical reaction of an alloy with its environment leading to corrosion, and mechanical loss of the metal by erosion, abrasion, or wear resulting also in corrosion. A main consideration of erosion control that the engineer should look into is the economic side. Other considerations that he should investigate are the strength of a structure, time for construction, availability of materials, and costs. The book also discusses the marine environment

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consisting of sea water, temperature fluctuations, dissolved gases, hydrogen sulphide, ammonia, carbon dioxide, electrical conductivity, fouling. The text describes the selection of materials to be used in marine environments, surface preparation of steel before painting, the type of paint, and metallic coatings. Some of the factors in selecting coating systems are: cost and estimated life before the first scheduled maintenance, adhesion properties, moisture tolerance, elasticity, chemical resistance, impact resistance, bacterial resistance. The factors affecting maintenance include environmental conditions, quality of initial protection applied, type of structure, as well as the design and purpose of the structure. The book has been prepared for engineers and designers who are not corrosion specialists but have to deal with marine corrosion problems as part of their day-to-day professional activities. The text will also turn out to be useful for engineers with general interest in structure, building, or machinery maintenance specially those located near coastal areas.

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

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software for naval architecture. The book also includes sample examination questions with worked examples answers to aid students in their learning.

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.

Shipboard Electrical Power Systems addresses new developments in this growing field. Focused on the trend toward electrification to power commercial shipping, naval, and passenger vessels, this book helps new or experienced engineers master cutting-edge methods for power system design, control, protection, and economic use of power. Provides Basic Transferable Skills for Managing Electrical Power on Ships or on Land This groundbreaking book is the first volume of its kind to illustrate optimization of all aspects of shipboard

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electrical power systems. Applying author Mukund Patel's rare combination of industrial and educational work experiences and insight, it offers solutions to meet the increasing demand for large, fast, efficient, and reconfigurable ships to compete in international markets. For 30 years, Professor Patel was an engineer for companies including General Electric, Lockheed Martin, and Westinghouse Electric, and in the past 15 years he has been an engineering professor at the U.S. Merchant Marine Academy. That varied experience helped him zero in on the specialized multidimensional knowledge an engineer requires—and that is what sets his book apart. Compiles Critical, Hard-to-Find Information on Power System Design, Analysis, and Operation The global shortage of power engineers is not deterring countries from heavily investing in construction of new power plants and grids. Consequent growth in university electrical power programs is satisfying the demand for engineers, but novice graduates require accelerated understanding and practical experience before entering the thriving maritime segment. Ideal for readers with limited electrical experience, wide-ranging coverage includes power system basics, power generation, electrical machines, power distribution, batteries, and marine industry standards. This book is an invaluable tool for engineers working on ships, as well as in ports, industrial power plants, refineries, and other similar environments.

Caters for marine engineer candidates for Department of Transport Certification as Marine Engineer Class One and Class Two. It covers the various items of ships'

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electrical equipment and explains operating principles. David McGeorge is a former lecturer in Marine Engineering at the College of Maritime Studies, Warsash, Southampton. He is the author of General Engineering Knowledge.

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.

Updated with the 2000 rules, the Fourth Edition provides shipyard electricians and electrical designers with the step-by-step instruction they need to design and install electrical systems on marine installations, whether shipboard or offshore. Written for novices, this workbook offers three modules of skill level: Fundamentals, Intermediate, and Advanced. Within each module, the author provides five lessons filled with detailed outlines, diagrams, charts, formulas, examples, solutions, blank

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worksheets, and study guides for increased understanding. Suitable for use as either a course text or as a self-help guide, this workbook examines current rules and regulations of the American Bureau of Shipping, United States Coast Guard, National Electronic Code, and Institute of Electrical and Electronic Engineers 45. Using this information, readers will acquire a basic knowledge of task requirements, including basic ship construction as well as power-and-lighting-system building and installation. Featuring the editorial revisions of the "ABS Rules for Building and Classing Steel Vessels," this edition addresses changes made to the American Bureau of Shipping's (ABS) rules, including the re-numbering and re-organization of all section numbers. For ease-of-reference, the author includes a chart of both the new ABS rules and the old ABS rules used throughout the workbook.

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. 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

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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 and researchers who need a handy introduction to solving marine technology related problems. IEEE 45™-2002 is an excellent standard, which is widely used for selecting shipboard electrical and electronic system equipment and its installation. The standard is a living document often interpreted differently by different users. Handbook to IEEE Standard 45™: A Guide to Electrical Installations on Shipboard provides a detailed background of the changes in IEEE Std 45-2002 and the reasoning behind the changes as well as explanation and adoption of other national and international standards. It contains the complete text of IEEE 45™-2002 relevant clauses, along with explanatory commentary consisting of: - Recommendation intent and interpretation - Historical perspective - Application -

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Supporting illustrations, drawings and tables This Handbook provides necessary technical details in a simplified form to enhance understanding of the requirements for technical and non-technical people in the maritime industry.

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.

Pounder's Marine Diesel Engines and Gas Turbines, Tenth Edition, gives engineering cadets, marine engineers, ship operators and managers insights into currently available engines and auxiliary equipment and trends for the future. This new edition introduces new engine models that will be most commonly installed in ships over the next decade, as well as the latest legislation and pollutant emissions procedures. Since publication of the last edition in 2009, a number of emission control areas (ECAs) have been established by the International Maritime Organization (IMO) in which exhaust emissions are subject to even more stringent controls. In addition, there are now rules that affect

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new ships and their emission of CO₂ measured as a product of cargo carried. Provides the latest emission control technologies, such as SCR and water scrubbers Contains complete updates of legislation and pollutant emission procedures Includes the latest emission control technologies and expands upon remote monitoring and control of engines

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