

Naval Architecture And Marine Engineering Nautilus

Excerpt from Transactions of the International Engineering Congress, 1915: Naval Architecture and Marine Engineering When steam navigation entered upon the rapid development dating from the middle of the last century, it became necessary that former crude ideas as to the resistance of ships and methods of determining the power required to drive a given ship at a given speed should be replaced by ideas and methods more in consonance with facts. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books. Find more at www.forgottenbooks.com This book is a reproduction of an important historical work. Forgotten Books uses state-of-the-art technology to digitally reconstruct the work, preserving the original format whilst repairing imperfections present in the aged copy. In rare cases, an imperfection in the original, such as a blemish or missing page, may be replicated in our edition. We do, however, repair the vast majority of imperfections successfully; any imperfections that remain are intentionally left to preserve the state of such historical works.

This textbook provides readers with an understanding of the basics of ship stability as it has been enacted in international law. The assessment of ship stability has evolved considerably since the first SOLAS convention after the sinking of the RMS Titanic, and this book enables readers to familiarise themselves with the most up-to-date modern day methodology, as well as looking ahead to the effects on ship design over the next fifty years. The author not only explains the methodology of probabilistic ship damage as required by the International Maritime Organisation (IMO), but also details the new requirements to assess certain sizes and classes of ships to the seven second-generation ship stability requirements. Many textbooks that are currently used by undergraduates focus on the geometric-centric deterministic approach to the assessment of ship stability, whereas this book also includes material on the classes of ships that are now required to have probabilistic ship damage assessment, as has only recently been agreed by the IMO. Basic Naval Architecture: Ship Stability contains up-to-date information, making it ideal for university students studying ocean or marine engineering, as well as being of interest to students on naval architecture and ship science courses. Highly illustrated and including chapter studies for ease of learning, the book is an ideal one-volume textbook for students.

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., 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.

International Engineering Congress, 1915, San Francisco, Cal.: Transactions

Applied Naval Architecture

Control of Marine Vehicles

Methodologies of Preliminary Design

Transactions - The Society of Naval Architects and Marine Engineers

This book offers a comprehensive and timely overview of internal combustion engines for use in marine environments. It reviews the development of modern four-stroke marine engines, gas and gas-diesel engines and low-speed two-stroke crosshead engines, describing their application areas and providing readers with a useful snapshot of their technical features, e.g. their dimensions, weights, cylinder arrangements, cylinder capabilities, rotation speeds, and exhaust gas temperatures. For each marine engine, information is provided on the manufacturer, historical background, development and

technical characteristics of the manufacturer's most popular models, and detailed drawings of the engine, depicting its main design features. This book offers a unique, self-contained reference guide for engineers and professionals involved in shipbuilding. At the same time, it is intended to support students at maritime academies and university students in naval architecture/marine engineering with their design projects at both master and graduate levels, thus filling an important gap in the literature.

This book offers an introduction to the fundamental principles and systematic methodologies employed in computational approaches to ship design. It takes a detailed approach to the description of the problem definition, related theories, mathematical formulation, algorithm selection, and other core design information. Over eight chapters and appendices the book covers the complete process of ship design, from a detailed description of design theories through to cutting-edge applications. Following an introduction to relevant terminology, the first chapters consider ship design equations and models, freeboard calculations, resistance prediction and power estimation. Subsequent chapters cover topics including propeller design, engine selection, hull form design, structural design and outfitting. The book concludes with two chapters considering operating design and economic factors including construction costs and fuel consumption. The book reflects first-hand experiences in ship design and R&D activities, and incorporates improvements based on feedback received from many industry experts. Examples provided are based on genuine case studies in the field. The comprehensive description of each design stage presented in this book offers guidelines for academics, researchers, students, and industrial manufactures from diverse fields, including ocean engineering and mechanical engineering. From a commercial point of view the book will be of great value to those involved in designing a new vessel or improving an existing ship.

The U.S. shipbuilding industry now confronts grave challenges in providing essential support of national objectives. With recent emphasis on renewal of the U.S. naval fleet, followed by the defense build-down, U.S. shipbuilders have fallen far behind in commercial ship construction, and face powerful new competition from abroad. This book examines ways to reestablish the U.S. industry, to provide a technology base and R&D infrastructure sustaining both commercial and military goals. Comparing U.S. and foreign shipbuilders in four technological areas, the authors find that U.S. builders lag most severely in business process technologies, and in technologies of new products and materials. New advances in system technologies, such as simulation, are also needed, as are continuing developments in shipyard production technologies. The report identifies roles that various government agencies, academia, and, especially, industry itself must play for the U.S. shipbuilding industry to attempt a turnaround.

Design Principles of Ships and Marine Structures

The Maritime Engineering Reference Book

The Annual of the Royal School of Naval Architecture and Marine Engineering

Transactions of the International Engineering Congress, 1915 ; San Francisco, California, September 20 - 25, 1915

Naval Architecture for Marine Engineers

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 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.

Naval Architecture for Marine Engineers focuses on resistance, propulsion, and vibration aspects of ships. The book first discusses the functions, layouts, and types of ships and terms used. The text looks at classification societies and governmental authorities influential on the design, construction, and safety of ships. Lloyd's Register of Shipping; governmental authorities; and Inter-governmental Maritime Consultative Organization (IMCO) are noted. The book also highlights ship calculations, including trapezoidal rule, Simpson's rule, and other rules for calculation. The text discusses as well the buoyancy, stability, and trim. Conditions for equilibrium of body floating in still water; calculation of underwater volume; stability at large angle of inclination; and flooding and damaged stability are considered. The selection also underscores structural strength of ships. Static forces on a ship in still water; dynamic longitudinal strength problem; resistance of ship to buckling; and materials used in ships are noted. The text also looks at resistance, powering, vibration, and propulsion of ships. The book is a vital source of data for readers interested in naval architecture.

From the co-author of Basic Ship Theory, this is a fully re-organised and rewritten successor to the well-known Muckle's Naval Architecture.

Shipbuilding Technology and Education

PUBLICATIONS from the MASSACHUSETTS INSTITUTE of TECHNOLOGY. CONTRIBUTION from the DEPARTMENT of NAVAL ARCHITECTURE AND MARINE ENGINEERING.

Muckle's Naval Architecture

Elements of Ocean Engineering

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."

The Maritime Engineering Reference Book is a one-stop source for engineers involved in marine engineering and naval architecture. In this essential reference, Anthony F. Molland has brought together the work of a number of the world's leading writers in the field to create an inclusive volume for a wide audience of marine engineers, naval architects and those involved in marine operations, insurance and other related fields. Coverage ranges from the basics to more advanced topics in ship design, construction and operation. All the key areas are covered, including ship flotation and stability, ship structures, propulsion, seakeeping and maneuvering. The marine environment and maritime safety are explored as well as new technologies, such as computer aided ship design and remotely operated vehicles (ROVs). Facts, figures and data from world-leading experts makes this an invaluable ready-reference for those involved in the field of maritime engineering. Professor A.F. Molland, BSc, MSc, PhD, CEng, FRINA. is Emeritus Professor of Ship Design at the University of Southampton, UK. He has lectured ship design and operation for many years. He has carried out extensive research and published widely on ship design and various aspects of ship hydrodynamics. * A comprehensive overview from best-selling authors including Bryan Barrass, Rawson and Tupper, and David Eyres * Covers basic and advanced material on marine engineering and Naval Architecture topics * Have key facts, figures and data to hand in one complete reference book

There is a driving need for naval professionals to focus on human factors issues. The number of maritime accidents is increasing and the chief cause is human error, both by the designer and the operator. Decreasing crew size, lack of experienced operators, operations in higher sea states and fatigue worsen the situation. Automation can be a partial solution, but flawed automated systems actually contribute to accidents at sea. Up to now, there has been no overarching resource available to naval marine vehicle designers and human factors professionals which bridges the gap between the human and the machine in this context. Designers understand the marine vehicle; human factors professionals understand how a particular environment affects people. Yet neither has a practical understanding of the other's field, and thus communicating requirements and solutions is difficult. This book integrates knowledge from numerous sources as well as the advice of a panel of eight recognized experts in the fields of related research, development and operation. The result is a reference that bridges the communications gap, and stands to help enhance the design and operation of all naval marine vehicles.

naval architecture and marine engineering

Research in Naval Architecture and Marine Engineering

Basic Naval Architecture

Contributions of the Department of Naval Architecture and Marine Engineering to Great Lakes Shipping

America's Greatest Naval Architect and His Quest to Build the S.S. United States

List of members in vols. 1-24, 38-54, 57.

A textbook that offers a unified treatment of the applications of hydrodynamics to marine problems. The applications of hydrodynamics to naval architecture and marine engineering expanded dramatically in the 1960s and 1970s. This classic textbook, originally published in 1977, filled the need for a single volume on the applications of hydrodynamics to marine problems. The book is solidly based on fundamentals, but it also guides the student to an understanding of engineering applications through its consideration of realistic configurations. The book takes a balanced approach between theory and empirics, providing the necessary theoretical background for an intelligent evaluation and application of empirical procedures. It also serves as an introduction to more specialized research methods. It unifies the seemingly diverse problems of marine hydrodynamics by examining them not as separate problems but as related applications of the general field of hydrodynamics. The book evolved from a first-year graduate course in MIT's Department of Ocean Engineering. A knowledge of advanced calculus is assumed. Students will find a previous introductory course in fluid dynamics helpful, but the book presents the necessary fundamentals in a self-contained manner. The 40th anniversary of this pioneering book offers a foreword by John Grue.

Contents Model Testing • The Motion of a Viscous Fluid • The Motion of an Ideal Fluid • Lifting Surfaces • Waves and Wave Effects • Hydrodynamics of Slender Bodies

Also contains the Ocean Engineering Laboratory report entitled Ocean Engineering Laboratory Participation in the Mackinac Bridge Recovery 26 September-1 October, 1989. Also includes student publications such as the newsletter The Deadweight from the Quarterdeck Society.

Webb Academy, of Naval Architecture and Marine Engineering

Computational Ship Design

Ship Construction

Marine Hydrodynamics

Massachusetts Institute of Technology, Department of Naval Architecture and Marine Engineering

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.

Applied Naval Architecture is intended for undergraduate students of many of the disciplines in maritime affairs, including marine engineering, marine transportation, nautical science, shipbuilding or ship production (shipyard apprentice schools), marine electrical engineering, meteorology, and oceanography. It could be used as an introduction to naval architecture for technical personnel of all types already employed in shipyards, and for licensed officers as a general reference and as preparation for license upgrading examinations. In short, its purpose is to describe what a naval architect does, and how he or she does it, to all students and practitioners involved in the business of merchant ships and shipping, except for professional naval architects themselves. Students preparing for a degree in naval architecture would also find the book useful as an introduction to their profession.

This textbook offers a comprehensive introduction to the control of marine vehicles, from fundamental to advanced concepts, including robust control techniques for handling model uncertainty, environmental disturbances, and actuator limitations. Starting with an introductory chapter that extensively reviews automatic control and dynamic modeling

techniques for ocean vehicles, the first part of the book presents in-depth information on the analysis and control of linear time invariant systems. The concepts discussed are developed progressively, providing a basis for understanding more complex techniques and stimulating readers' intuition. In addition, selected examples illustrating the main concepts, the corresponding MATLAB® code, and problems are included in each chapter. In turn, the second part of the book offers comprehensive coverage on the stability and control of nonlinear systems. Following the same intuitive approach, it guides readers from the fundamentals to more advanced techniques, which culminate in integrator backstepping, adaptive and sliding mode control. Leveraging the author's considerable teaching and research experience, the book offers a good balance of theory and stimulating questions. Not only does it provide a valuable resource for undergraduate and graduate students; it will also benefit practitioners who want to review the foundational concepts underpinning some of the latest advanced marine vehicle control techniques, for use in their own applications.

Principles of Naval Architecture: Resistance, propulsion and vibration

A Guide to Ship Design, Construction and Operation

Introduction to Naval Architecture

Naval Architecture and Marine Engineering

Naval Architecture and Marine Engineering (Classic Reprint)

Trieste Publishing has a massive catalogue of classic book titles. Our aim is to provide readers with the highest quality reproductions of fiction and non-fiction literature that has stood the test of time. The many thousands of books in our collection have been sourced from libraries and private collections around the world. The titles that Trieste Publishing has chosen to be part of the collection have been scanned to simulate the original. Our readers see the books the same way that their first readers did decades or a hundred or more years ago. Books from that period are often spoiled by imperfections that did not exist in the original. Imperfections could be in the form of blurred text, photographs, or missing pages. It is highly unlikely that this would occur with one of our books. Our extensive quality control ensures that the readers of Trieste Publishing's books will be delighted with their purchase. Our staff has thoroughly reviewed every page of all the books in the collection, repairing, or if necessary, rejecting titles that are not of the highest quality. This process ensures that the reader of one of Trieste Publishing's titles receives a volume that faithfully reproduces the original, and to the maximum degree possible, gives them the experience of owning the original work. We pride ourselves on not only creating a pathway to an extensive reservoir of books of the finest quality, but also providing value to every one of our readers. Generally, Trieste books are purchased singly - on demand, however they may also be purchased in bulk. Readers interested in bulk purchases are invited to contact us directly to enquire about our tailored bulk rates.

A Harvard-educated historian and advisor to the U.S. Navy documents the story of innovative ship designer William Francis Gibbs, describing the breakthroughs that enabled him to craft high-performance ships of unprecedented versatility. 50,000 first printing.

Naval Architecture for Marine Engineers Elsevier

A Technical and Historical Overview

A Man and His Ship

Reeds Vol 4: Naval Architecture

Naval Architecture and Shipbuilding

Ship Stability

Muckle's Naval Architecture, Second Edition is concerned with problems related to resistance, propulsion, and vibration in naval architecture. Topics include ship calculations, stability and trim, ship strength. This book also gives a brief reference to ship design. This text is comprised of 13 chapters; the first of which provides an overview of the function of the ship, its layout, and various typ definitions, principal dimensions, and form coefficients, along with classification societies and governmental authorities that regulate ship design, construction, and safety. Various calculations that the form of a ship are the subject of the next chapter. Attention then turns to buoyancy, stability, and trim, along with sea and ship motions, the problem of structural strength, vibration, and res and control on ship movement is also discussed. Finally, this book describes the methods for determining the amount of power required to propel a ship. This book is intended primarily for practicing engineers, deck officers, and all students of naval architecture.

The Definitive Reference for Designers and Design Students A solid grasp of the fundamentals of materials, along with a thorough understanding of load and design techniques, provides the compo marine platform design. Design Principles of Ships and Marine Structures details every facet of ship design and design integration, and highlights the design aspects that must be put together to o product. This book discusses naval architecture and marine engineering applications and principles relevant to the design of various systems, examines advanced numerical techniques that can be a procedure at the concept design stage, and offers a comprehensive approach to the subject of ship design. Covers the Entire Sphere of Marine Design The book begins with an introduction to mar environment, describing many of the marine products that are used for transportation, defense and the exploitation of marine resources. It also discusses stability issues relevant to ship design, a resistance, propulsion, sea keeping and maneuvering, and their effects on design. In addition to covering the various systems and sub-systems that go into making a complex product to be used in author explains engineering economics and its application in ship design, and provides examples wherever necessary. Written by an author with more than 35 years of teaching experience, this boo methodologies such as sequential design process with the application of concurrent engineering and set based design factors in the use of computer-aided design techniques Highlights the shape and layout design principles Considers design aspects relative to safety and risk assessment Introduces the design for production aspects in marine product development Discusses design principle principles of numerical optimization for decision-making Design Principles of Ships and Marine Structures focuses on ship design efficiency, safety, sustainability, production, and management, and a design professionals in the field of shipping, shipbuilding and offshore engineering.

Dept. of Naval Architecture and Marine Engineering (University of Michigan) Publications

Ship Design

Transactions of the International Engineering Congress, 1915

Ship Construction and Welding

A manual of naval architecture