

Ship Automation For Marine Engineers And Etos

In 1974, a scientific conference covering marine automation group and large vessels issues was organized under the patronage of the Technical Naval Studies Centre (CETENA) and the Italian National Research Council (CNR). A later collaboration with the Marine Technical Association (ATENA) led to the renaming of the conference as NAV, extending the topics covered to the technical field previously covered by ATENA national conferences. The NAV conference is now held every 3 years, and attracts specialists from all over the world. This book presents the proceedings of NAV 2018, held in Trieste, Italy, in June 2018. The book contains 70 scientific papers, 35 technical papers and 16 reviews, and subjects covered include: comfort on board; conceptual and practical ship design; deep sea mining and marine robotics; protection of the environment; renewable marine energy; design and engineering of offshore vessels; digitalization, unmanned vehicles and cyber security; yacht and pleasure craft design and inland waterway vessels. With its comprehensive coverage of scientific and technical maritime issues, the book will be of interest to all those involved in this important industry.

The shipping industry has been growing in leaps and bounds over the past few decades. The answer to reduced manning, together with demanding operating schedules, has more often than not been automation. Hence the need of the hour for a seafarer is adequate knowledge of UMS environments and their supporting systems onboard ships. With almost 30 years of first-hand experience by each of us in this mammoth industry, we have seen the evolution from control elements and systems of the post 2nd world-war era to the most sophisticated components and networks available today. It has indeed been a wonderful journey through time! These experiences have been our guiding light; they have prompted us to share our acquired knowledge with our counterparts and students of the maritime industry.

Dynamic Positioning for Engineers enables the reader to acquire the basic knowledge of the concepts and understanding of the dynamic positioning (DP) system from the systems perspective. This book illustrates the system, subsystems and components of the DP system to better tackle maintenance, problems and breakdowns, leading to an increased mean time between failures and effective fault finding on dynamic positioning DP-related equipment. Overall, this text will help professionals reduce downtime and higher repair costs. Aimed at onboard electrical engineers, engine room watch officers, chief engineers, DP professionals onboard, in onshore officers and those taking DP training courses, this book: Explains automation and its application in the DP system Describes environmental sensors and position reference sensors as important inputs to the DP system Includes chapters on power management and thrusters Aids engineers in maintaining a the DP system in good operational condition

A Practical Guide

Proceedings of NAV 2018: 19th International Conference on Ship & Maritime Research

Practical Marine Electrical Knowledge

An Overview of MASS

A Joint Conference Held on 6 March 1974

A Guide to Human Behaviour in the Shipping Industry

This book offers a comprehensive review of collision avoidance techniques and safe trajectory planning for manned and unmanned ships, together with extensive information on how to develop and implement algorithms for applications in real world settings. It describes the most relevant decision-support systems and guidance systems used in the control of aircraft, giving a special emphasis to autonomous vehicles, but also covering manned ones. Thanks to its good balance of theory and practice, and the inclusion of basic explanations of all essential concepts, this book fills an important gap in the literature of marine navigation, providing not only researchers and practitioners with a timely reference guide to safe trajectory planning, but also supporting students and newcomers to the field.

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 mathematical 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 hazardous 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.

This book describes the history and development of marine power plant. Problems of arrangement, general construction and parameters of marine power plants of all types are considered. It also introduces different characteristics of each type of marine power plant, matching characteristics for diesel propulsion. The book gives a clear idea about different marine engines, including working principle, structure and application. Readers will understand easily the power system for marine engines since there are a lot of illustrations and instructions for each of the equipment. This book is useful for students majoring in marine engineering.

"marine engineering", "energy and power engineering" and other related majors. It is also useful for operators of marine institutions for learning main design and operation of ship plants.

Marine Propulsion Simulation

Dynamic Positioning for Engineers

Marine Power Plant

Report Writing for Professional Marine Engineers

An Introduction to Ship Automation and Control Systems

Ship Lifecycle

The future national security environment will present the naval forces with operational challenges that can best be met through the development of military capabilities that effectively leverage rapidly advancing technologies in many areas. The panel envisions a world where the naval forces will perform missions in the future similar to those they have historically undertaken. These missions will continue to include sea control, deterrence, power projection, sea lift, and so on. The missions will be accomplished through the use of platforms (ships, submarines, aircraft, and spacecraft), weapons (guns, missiles, bombs, torpedoes, and information), manpower, materiel, tactics, and processes (acquisition, logistics, and so on.). Accordingly, the Panel on Technology attempted to identify those technologies that will be of greatest importance to the future operations of the naval forces and to project trends in their development out to the year 2035. The primary objective of the panel was to determine which are the most critical technologies for the Department of the Navy to pursue to ensure U.S. dominance in future naval operations and to determine the future trends in these technologies and their impact on Navy and Marine Corps superiority. A vision of future naval operations ensued from this effort. These technologies form the base from which products, platforms, weapons, and capabilities are built. By combining multiple technologies with their future attributes, new systems and subsystems can be envisioned. Technology for the United States Navy and Marine Corps, 2000-2035 Becoming a 21st-Century Force: Volume 2: Technology identifies those technologies that are unique to the naval forces and whose development the Department of the Navy clearly must fund, as well as commercially dominated technologies that the panel believes the Navy and Marine Corps must learn to adapt as quickly as possible to naval applications. Since the development of many of the critical technologies is becoming global in nature, some consideration is given to foreign capabilities and trends as a way to assess potential adversaries' capabilities. Finally, the panel assessed the current state of the science and technology (S&T) establishment and processes within the Department of the Navy and makes recommendations that would improve the efficiency and effectiveness of this vital area. The panel's findings and recommendations are presented in this report.

Marine and Offshore Pumping and Piping System covers the history, application, installation, maintenance, and safety of different pumping and piping systems. The book covers topics such as pumping arrangements, especially in machinery spaces; water ballast, oil fuel,

feed, and cooling water systems; and piping systems for oil and chemical tankers. Also covered are topics such as the arrangements in liquefied gas carriers and fuel gas and coal burning; the required arrangements and systems for specialized ships and its related regulations; the automation of control systems; piping designs, and offshore services. The text is recommended for marine engineers who would like to know more about the pumping and piping systems on ships and offshore services, as well as their arrangements. 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.

Methods and Results

Technology and Science for the Ships of the Future

Operation and Maintenance of Machinery in Motorships

The Human Element

Practical Experience with Shipboard Automation

PROGRAMMABLE LOGIC CONTROLLERS AND APPLICATIONS FOR MARINE ENGINEERS AND ETOS.

The propulsion system behaviour is a key aspect for the overall dynamics of a ship. However, despite its great importance, numerical methodologies for detailed investigations on marine propulsion dynamics are not yet widely covered in scientific literature. This book presents the main steps for the development of a multi-physic simulation platform, able to represent the motions of a twin screw ship in six degrees of freedom, taking into account the whole propulsion system and automation effects. A number of mathematical sub-models had been developed and calibrated by a set of experimental tests, in model and full scale. Finally, the sea trials campaign of a ship is used to validate and tune the developed simulator. The proposed simulation methodology can be used in the ship preliminary design phase, in order to plan and test the propulsion system and automation. Further applications can include the design optimization and crew training.

Ship and Mobile Offshore Unit Automation: A Practical Guide: A Practical Guide gives engineers a much-needed reference on relevant standards and codes, along with practical case studies on how to use these standards on actual projects and plans. Packed with the critical procedures necessary for each phase of the project, the book also gives an outlook on trends of development for control and monitoring systems, including usage of artificial intelligence in software development and prospects for the use of autonomous vessels. Rounding out with a glossary and introductory chapter specific to the new marine engineer just starting, this book delivers a source of valuable information to help offshore engineers be better prepared to safely and efficiently design today's offshore unit control systems. Helps readers understand the worldwide offshore unit regulations necessary for monitoring systems and automation installation, including ISO, IEC, IEEE, IMO, SOLAS AND MODU, ABS, DNVGL, API, NMA and NORSOK Presents real-world examples that apply standards Provides tactics on how to procure control and monitoring systems specific to the offshore industry

In an effort to contribute to global efforts by addressing the marine pollution from various emission types, this Special Issue of Ship Lifecycle for Journal of Marine Science and Engineering was inspired to provide a comprehensive insight for naval architects, marine engineers, designers, shipyards, and ship-owners who strive to find optimal ways to survive in competitive markets by improving cycle time and the capacity to reduce design, production, and operation costs while pursuing zero emission. In this context, this Special Issue is devoted to providing insights into the latest research and technical developments on ship systems and operation with a life cycle point of view. The goal of this Special Issue is to bring together researchers from the whole marine and maritime community into a common forum to share cutting-edge research on cleaner shipping. It is strongly believed that such a joint effort will contribute to enhancing the sustainability of the marine and maritime activities. This Special Issue features six novel publications dedicated to this endeavor. First of all, as a proactive response to transitioning to cleaner marine fuel sources, numerous aspects of the excellence of fuel-cell based hybrid ships were demonstrated through four publications. In addition, two publications demonstrated the effectiveness of life cycle assessment (LCA) applicable to marine vessels.

Guide for Centralized Control and Automation of Ship's Steam Propulsion Plant
Automation for the Maritime Industries

from ship design and build, through automation and management and on to support : [conference

proceedings ; London, 11-12 May, 1999]
Centralized and Automatic Controls in Ships
A Guide to Ship Design, Construction and Operation
Ship and Mobile Offshore Unit Automation

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.

Centralized and Automatic Controls in Ships provide a non-mathematical basic introduction to the subject of control engineering applied in the marine field. This book is composed of 20 chapters that cover the basic principles of the equipment in ships. The opening chapters deal with ship components, construction, and commissioning routine for certain automated plant. The next chapters consider the basic principles of automatic control and controllers. These topics are followed by discussions on logic units and data processing equipment, other control elements, steam turbines, and diesel engines. Other chapters illustrate the application of control techniques to the major areas of the ship's machinery. The final chapters examine ship and ship's control system commissioning and maintenance. This book is an invaluable source for marine engineers and marine engineering students.

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.

Volume 2: Technology

The Running and Maintenance of Marine Machinery

From Ship Design and Build, Through Automation and Management and on to Do Support

Technology for the United States Navy and Marine Corps, 2000-2035 Becoming a 21st-Century Force

SHIPS AND NAVAL ARCHITECTURE.

For Marine Engineers and ETos

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.

Based on a wide range of consultations with maritime organisations, the guide was produced by organisational psychologists gs partnership ltd, for consortium partners UK Maritime and Coastguard Agency, BP Shipping, Teekay Marine Services, and the Standard P&I Club. Aimed at everyone in the shipping industry, the Guide explains the fundamental aspects of human behaviour, which together constitute what the commercial maritime sector calls 'the human element'. It makes clear that the human element is neither peripheral nor optional in the pursuit of a profitable and safe shipping industry. The Guide clearly shows that managing the human element must take place simultaneously at all levels of the industry. Analysis of continuing shipping disasters has increasingly implicated the human element. The loss of life, the impact on company profits and credibility, and the vast environmental damage that can result from the loss of even a single vessel remain clear. The Guide offers insight, explanation and advice to help manage the human element more effectively, more safely and more profitably.

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.

Engine Room Automation

The Maritime Engineering Reference Book

A New Semisubmerged Ship Concept

Reeds Vol 10: Instrumentation and Control Systems

Computers and ships

Control of Marine Vehicles

"This book will introduce you to a variety of modern electrical appliances that are utilised for ships' automation, and while reading it you will progress to read electrical diagrams in the way that skilled electricians do. If you find yourself reading something you already know, read it anyway, you may gain a better foundation for what follows." -- Preface.

Unmanned ships and autonomous ships are quickly becoming a reality, making shipping safer and more efficient. However, traditional tasks and functions are becoming blurred as new technology changes how the unique needs of different sectors are met. In addition to large vessels dedicated to the transport of goods and cargos across the oceans, major efforts are underway towards the automation of small coastal shipping that includes ferries, tugboats, supply and service vessels, and barges. Automated vehicles are also replacing conventional ships for inspecting and servicing pipelines, drilling platforms, wind farms and other offshore installations. Automated shipping is explored in terms of economics, technology, safety and the environment under the broad themes of ship design and engineering, command and control, navigation, communications, security, regulatory issues, and training. This includes initiatives for autonomous shipping as well as civilian implications of military ship automation programs. This book is primarily for maritime professionals, regulatory authorities, insurers, and environmental groups. It also suits undergraduate students involved in deck officer training, and graduate students and academics involved in research in ship design, operations and management.

This handbook is the definitive reference for the interdisciplinary field that is ocean engineering. It integrates the coverage of fundamental and applied material and encompasses a diverse spectrum of systems, concepts and operations in the maritime environment, as well as providing a comprehensive update on contemporary, leading-edge ocean technologies. Coverage includes an overview on the fundamentals of ocean science, ocean signals and instrumentation, coastal structures, developments in ocean energy technologies and ocean vehicles and automation. It aims at practitioners in a range of offshore industries and naval establishments as well as academic researchers and graduate students in ocean, coastal, offshore and marine engineering and naval architecture. The Springer Handbook of Ocean Engineering is organized in five parts: Part A: Fundamentals, Part B: Autonomous Ocean Vehicles, Subsystems and Control, Part C: Coastal Design, Part D: Offshore Technologies, Part E: Energy Conversion

Naval Feasibility of the S3

Marine Electrical Technology, 4/e H/C

Engine-room Simulator

Marine Engineering/log

Marine and Offshore Pumping and Piping Systems

Ship Automation

*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*

Human Factors for Naval Marine Vehicle Design and Operation

Te Ship Operator's View : a Symposium, Northern California Section, Society of Naval Architects and Marine Engineers, May 11, 1967, San Francisco, California

A Bibliography on Various Aspects of Ship Automation

Springer Handbook of Ocean Engineering

Computers and Ships

Safe Trajectory Planning for Maritime Surface Ships