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Pipelines and Risers

Ship-shaped offshore units are some of the more economical systems for the development of offshore oil and gas, and are often preferred in marginal fields. These systems are especially attractive to develop oil and gas fields in deep and ultra-deep water areas and remote locations away from existing pipeline infrastructures. Recently, the ship-shaped offshore units have been applied to near shore oil and gas terminals. This 2007 text is an ideal reference on the technologies for design, building and operation of ship-shaped offshore units, within inevitable space requirements. The book includes a range of topics, from the initial contracting strategy to decommissioning and the removal of the units concerned. Coverage includes both fundamental theory and principles of the individual technologies. This book will be useful to students who will be approaching the subject for the first time as well as designers working on the engineering for ship-shaped offshore installations.

Wave, tidal and offshore wind technologies have long held the promise of seemingly limitless energy supplies. In practice, while offshore wind is growing relatively rapidly, all three sectors have lagged behind expectations. This book, from the International Energy Authority Renewable Energy Technology Deployment implementing agreement (IEA-RETD), examines the reasons for this and suggests how barriers to deployment might be overcome. Beginning with an assessment of the marine energy resource, it provides a detailed introduction to the

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main technologies currently being employed to harness wind, tidal and offshore wind power. It then examines the types of policies which are used to encourage deployment around the world, and progress towards meeting targets. The economics of offshore energy projects are discussed, along with risks that projects face and the types of finance which are available. A final section turns to barriers - both technical and non-technical (including environmental, health and safety, skill related, supply chain and more) - and in all cases suggests how to mitigate and remove these barriers. Highly illustrated in full colour, this is an indispensable resource for anyone - whether in industry, policy or academia - looking to learn more about how deployment of offshore renewable energy technologies can be encouraged.

This volume describes recent landmark achievements in the North Sea and a wide range of innovations that have reduced costs and brought earlier revenue to operators including drilling, platform design, lifting jackets, pipeline performance and economical abandonment.

Compiled with the help of an internationally acclaimed panel of experts, the Ocean Engineering Handbook is the most complete reference available for professionals. It offers you

comprehensive coverage of important areas of the theory and practice of oceanic/coastal engineering and technology. This well organized text includes five major sections: M

This collection contains 24 papers presented at the 2003 International Symposium on Deepwater Mooring Systems: Concepts, Design, Analysis and Materials, held in Houston, Texas, October 2-3, 2003.

Developments in Maritime Transportation and Exploitation of Sea Resources covers recent developments in maritime transportation and exploitation of sea resources, encompassing ocean and coastal areas. The book brings together a selection of papers reflecting

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fundamental areas of recent research and development in the fields of:- Ship Hydrodynamics- Cargo management, especially in the maritime sphere, plays a vital role in the transfer of goods between seller and buyer. However, despite over 90% of the world's international trade being conducted by sea, often very little is known about this subject by either party. This unique text provides a clear and comprehensive introduction to the principal elements involved in the management of marine cargo and the carriage of goods by sea. Not only does it analyse key theories and debates in the maritime freight sector, it is equally instructive on practice and logistics. Furthermore, the book provides a thorough guide to the roles and responsibilities of all parties involved in this dynamic industry. This second edition has been fully revised and updated to incorporate the very latest changes in cargo management legislation and procedures, including: Offshore oil & gas supply management The revised INCOTERMS 2010 Tramp shipping and spot cargo trading Project cargo management Dry and liquid bulk cargo management The IMDG Code and the marine carriage of dangerous and hazardous goods Cabotage Salvage Risk management and best practice This is an essential guide for shipping professionals, academics and students of marine logistics, and international trade. Ship-Shaped Offshore Installations Design, Building, and Operation Cambridge University Press

The book "Fundamentals of Floating Production Systems" provides a basic and fundamental knowledge of all the components, equipment, facilities and system for any

floating production system and sub-sea production system. The flow of the book is simple, concepts are illustrative and coverage is quite comprehensive. The book, through a given case study, provides an implicit understanding of the various facets that requires to be understood while planning for a field development with floating production systems in conjunction with sub-sea production systems. Aimed at undergraduate students in academics and for the beginners in the industry, this book is a foundation that is a must to understand the higher dimensions of these concepts once they join the industry.

Offshore Mechanics: Structural and Fluid Dynamics for Recent Applications is a textbook which covers theoretical concepts in offshore mechanics with consideration to new applications. Whereas most of the books currently available in the field of offshore mechanics use traditional oil, gas, and ship industry examples in order to explain the fundamentals in offshore mechanics, this book uses more recent applications including offshore wind farms, ocean energy devices, aquaculture, floating bridges and submerged tunnels. Offshore Mechanics: Structural and Fluid Dynamics for Recent Applications covers traditional and more recent methodologies used in offshore structure modelling (including SPH and Hydro-elasticity models). It examines numerical techniques, including computational fluid dynamics and finite element method and includes easy to understand examples.

Issues in Systems Engineering / 2011 Edition is a ScholarlyEditions™ eBook that

delivers timely, authoritative, and comprehensive information about Systems Engineering. The editors have built Issues in Systems Engineering: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Systems Engineering in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Systems Engineering: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

* Each chapter is written by one or more invited world-renowned experts * Information provided in handy reference tables and design charts * Numerous examples demonstrate how the theory outlined in the book is applied in the design of structures Tremendous strides have been made in the last decades in the advancement of offshore exploration and production of minerals. This book fills the need for a practical reference work for the state-of-the-art in offshore engineering. All the basic background material and its application in offshore engineering is covered. Particular emphasis is placed in the application of the theory to practical problems. It includes the practical aspects of the offshore structures with handy design guides, simple description of the

various components of the offshore engineering and their functions. The primary purpose of the book is to provide the important practical aspects of offshore engineering without going into the nitty-gritty of the actual detailed design. · Provides all the important practical aspects of ocean engineering without going into the 'nitty-gritty' of actual design details· · Simple to use - with handy design guides, references tables and charts· · Numerous examples demonstrate how theory is applied in the design of structures

This book comprises selected proceedings of the Fourth International Conference in Ocean Engineering (ICOE2018), focusing on emerging opportunities and challenges in the field of ocean engineering and offshore structures. It includes state-of-the-art content from leading international experts, making it a valuable resource for researchers and practicing engineers alike.

In this book, an attempt has been made by the author to present numerous important questions with answers which have been methodically prepared/selected from different text books, manuals of petroleum industries, SPE technical papers and teaching materials of distinguished persons. These questions are very relevant for promoting fundamental understanding of petroleum engineering and will be primarily useful for fresh graduates of petroleum engineering who can prepare themselves soundly for both written as well as oral examinations.

This book provides an overview of floating offshore wind farms and focuses on the

economic aspects of this renewable-energy technology. It presents economic maps demonstrating the main costs, and explores various important aspects of floating offshore wind farms. It examines topics including offshore wind turbines, floating offshore wind platforms, mooring and anchoring, as well as offshore electrical systems. It is a particularly useful resource in light of the fact that most water masses are deep and therefore not suitable for fixed offshore wind farms. A valuable reference work for students and researchers interested in naval and ocean engineering and economics, this book provides a new perspective on floating offshore wind farms, and makes a useful contribution to the existing literature.

Handbook of Offshore Oil and Gas Operations is an authoritative source providing extensive up-to-date coverage of the technology used in the exploration, drilling, production, and operations in an offshore setting. Offshore oil and gas activity is growing at an expansive rate and this must-have training guide covers the full spectrum including geology, types of platforms, exploration methods, production and enhanced recovery methods, pipelines, and environmental management and impact, specifically worldwide advances in study, control, and prevention of the industry's impact on the marine environment and its living resources. In addition, this book provides a go-to glossary for quick reference. Handbook of Offshore Oil and Gas Operations empowers oil and gas engineers and managers to understand and capture on one of the fastest growing markets in the energy sector today. Quickly become familiar with the oil and

gas offshore industry, including deepwater operations Understand the full spectrum of the business, including environmental impacts and future challenges Gain knowledge and exposure on critical standards and real-world case studies

A carefully selected compilation of the most relevant articles from the online edition of "ULLMANN's Encyclopedia of Industrial Chemistry", this three-volume handbook contains a wealth of information on energy sources, energy generation and storage, fossil and renewable fuels as well as the associated processing technology. Fossil as well as renewable fuels, nuclear technology, power generation and storage technologies are treated side by side, providing a unique overview of the entire global energy industry. New or updated articles include such classical topics as coal technologies, oil and gas, as well as cutting-edge technologies, such as biogas, thermoelectricity and solar technology. The result is an in-depth survey of industrial-scale energy technology.

Dynamics and Control of Mechanical Systems in Offshore Engineering is a comprehensive treatment of marine mechanical systems (MMS) involved in processes of great importance such as oil drilling and mineral recovery. Ranging from nonlinear dynamic modeling and stability analysis of flexible riser systems, through advanced control design for an installation system with a single rigid payload attached by thrusters, to robust adaptive control for mooring systems, it is an authoritative reference on the dynamics and control of MMS. Readers will gain not only a complete picture of

MMS at the system level, but also a better understanding of the technical considerations involved and solutions to problems that commonly arise from dealing with them. The text provides: - a complete framework of dynamical analysis and control design for marine mechanical systems; - new results on the dynamical analysis of riser, mooring and installation systems together with a general modeling method for a class of MMS; - a general method and strategy for realizing the control objectives of marine systems with guaranteed stability the effectiveness of which is illustrated by extensive numerical simulation; and - approximation-based control schemes using neural networks for installation of subsea structures with attached thrusters in the presence of time-varying environmental disturbances and parametric uncertainties. Most of the results presented are analytical with repeatable design algorithms with proven closed-loop stability and performance analysis of the proposed controllers is rigorous and detailed. *Dynamics and Control of Mechanical Systems in Offshore Engineering* is primarily intended for researchers and engineers in the system and control community, but graduate students studying control and marine engineering will also find it a useful resource as will practitioners working on the design, running or maintenance of offshore platforms.

This book gathers the peer-reviewed proceedings of the 14th International Symposium, PRADS 2019, held in Yokohama, Japan, in September 2019. It brings together naval architects, engineers, academic researchers and professionals who are involved in

ships and other floating structures to share the latest research advances in the field. The contents cover a broad range of topics, including design synthesis for ships and floating systems, production, hydrodynamics, and structures and materials. Reflecting the latest advances, the book will be of interest to researchers and practitioners alike. In industry, miscommunication can cause frustration, create downtime, and even trigger equipment failure. By providing a common ground for more effective discourse, the Dictionary of Oil, Gas, and Petrochemical Processing can help eliminate costly miscommunication. An essential resource for oil, gas, and petrochemical industry professionals, engineer

This report is part of a series of reports that summarize this regular event. The report discusses research developments in ship design, construction, and operation in a forum that encouraged both formal and informal discussion of presented papers.

This open access book offers a timely guide to challenges and current practices to permanently plug and abandon hydrocarbon wells. With a focus on offshore North Sea, it analyzes the process of plug and abandonment of hydrocarbon wells through the establishment of permanent well barriers. It provides the reader with extensive knowledge on the type of barriers, their functioning and verification. It then discusses plug and abandonment methodologies, analyzing

different types of permanent plugging materials. Last, it describes some tests for verifying the integrity and functionality of installed permanent barriers. The book offers a comprehensive reference guide to well plugging and abandonment (P & A) and well integrity testing. The book also presents new technologies that have been proposed to be used in plugging and abandoning of wells, which might be game-changing technologies, but they are still in laboratory or testing level. Given its scope, it addresses students and researchers in both academia and industry. It also provides information for engineers who work in petroleum industry and should be familiarized with P & A of hydrocarbon wells to reduce the time of P & A by considering it during well planning and construction.

?The book addresses the topic of on-line implementation of structural and mechanical design criteria as an explicit part of optimal control schemes. The intention of the present research monograph is to reflect recent developments within this area. Examples of application of relevant control algorithms are included to illustrate their practical implementation. These examples are mainly taken from the area of marine technology with the multi-component external loading being represented as both varying in time and with magnitudes that are represented as statistical quantities. The relevant target group will be mechanical and structural engineers that are concerned with “smart components and

structures” where optimal design principles and control actuators are combined. The book is also relevant for engineers e.g. involved in mechatronics and control applications.

Existing coastal management and defense approaches are not well suited to meet the challenges of climate change and related uncertainties. Professionals in this field need a more dynamic, systematic and multidisciplinary approach.

Written by an international group of experts, Coastal Risk Management in a Changing Climate provides innovative, multidisciplinary best practices for mitigating the effects of climate change on coastal structures. Based on the Theseus program, the book includes eight study sites across Europe, with specific attention to the most vulnerable coastal environments such as deltas, estuaries and wetlands, where many large cities and industrial areas are located.

Integrated risk assessment tools for considering the effects of climate change and related uncertainties
Presents latest insights on coastal engineering defenses
Provides integrated guidelines for setting up optimal mitigation measures
Provides directly applicable tools for the design of mitigation measures
Highlights socio-economic perspectives in coastal mitigation

This new reference describes the applications of modern structural engineering to marine structures. It will provide an invaluable resource to practicing marine

and offshore engineers working in oil and gas as well as those studying marine structural design. The coverage of fatigue and fracture criteria forms a basis for limit-state design and re-assessment of existing structures and assists with determining material and inspection requirements. Describing applications of risk assessment to marine and offshore industries, this is a practical and useful book to help engineers conduct structural design. *Presents modern structural design principles helping the engineer understand how to conduct structural design by analysis *Offers practical and usable theory for industrial applications of structural reliability theory

The technology of hydrodynamic modeling and marine craft motion control systems has progressed greatly in recent years. This timely survey includes the latest tools for analysis and design of advanced guidance, navigation and control systems and presents new material on underwater vehicles and surface vessels. Each section presents numerous case studies and applications, providing a practical understanding of how model-based motion control systems are designed. Key features include: a three-part structure covering Modeling of Marine Craft; Guidance, Navigation and Control Systems; and Appendices, providing all the supporting theory in a single resource kinematics, kinetics, hydrostatics, seakeeping and maneuvering theory, and simulation models for

marine craft and environmental forces guidance systems, sensor fusion and integrated navigation systems, inertial measurement units, Kalman filtering and nonlinear observer design for marine craft state-of-the-art methods for feedback control more advanced methods using nonlinear theory, enabling the user to compare linear design techniques before a final implementation is made. linear and nonlinear stability theory, and numerical methods companion website that hosts links to lecture notes and download information for the Marine Systems Simulator (MSS) which is an open source Matlab/Simulink® toolbox for marine systems. The MSS toolbox includes hydrodynamic models and motion control systems for ships, underwater vehicles and floating structures With an appropriate balance between mathematical theory and practical applications, academic and industrial researchers working in marine and control engineering aspects of manned and unmanned maritime vehicles will benefit from this comprehensive handbook. It is also suitable for final year undergraduates and postgraduates, lecturers, development officers, and practitioners in the areas of rigid-body modeling, hydrodynamics, simulation of marine craft, control and estimation theory, decision-support systems and sensor fusion.

www.wiley.com/go/fossen_marine

This encyclopedia and atlas overviews industry developments during 2001 in

each oil-producing country around the world. The 97 entries review such topics as capital investments, exploration, discoveries, markets, and pricing. Color maps of each country or region indicate the location of oil and gas

Mitochondrial dysfunction is increasingly being recognized as the basis of a wide variety of human diseases. Providing an authoritative update on our current knowledge of mitochondrial medicine, this text draws together world authorities from various fields to present general therapeutic strategies, as well as the treatments presently available in different specialties - thus making it essential reading for clinicians involved with the management of patients with mitochondrial diseases. A unique work, this text covers a range of specialties, including cardiology, ophthalmology, otology, nephrology, gastroenterology, hematology-oncology, and reproductive medicine, and does not focus exclusively on the more commonly known neurologic conditions. An accessible, user-friendly text, it also presents translational concepts of mitochondrial biogenesis and genetics in vignettes related to specific questions raised by the disease under discussion, rather than concentrating on basic science, which can often intimidate clinicians. This pioneering work is primarily directed to a clinical audience who are interested in the diverse and diagnostically challenging clinical presentations of mitochondrial diseases and their pathophysiology.

Comprehensive insight into the offshore oil and gas industry for those intending to choose it as a career Full syllabus coverage for OPITO BOSIET, FOET, MIST and

IMIST courses Produced in full colour with over 180 images Basic Offshore Safety covers everything that newcomers to the offshore oil and gas industry need to know prior to travelling offshore or when attending OPITO's Basic Offshore Safety Induction and Emergency Training (BOSIET), Minimum Industry Safety Training (MIST), Further Offshore Emergency Training (FOET) and International MIST courses. Primarily focused on the oil industry, this book introduces readers to the key safety topics in the offshore support vessel industry and common to the renewable industry. Written in easy to follow steps and including references to both the legislation and guidance where relevant, Abdul Khaliq walks the reader through the hazards they are likely to encounter when travelling to, from or working offshore, showing how to minimise risks and deal with any issues that may arise at any stage of the work.

This book introduces readers to various types of offshore platform geometries. It addresses the various environmental loads encountered by these structures, and provides detailed descriptions of the fundamentals of structural dynamics in a classroom style, helping readers estimate damping in offshore structures and grasp these aspects' applications in preliminary analysis and design. Basic concepts of structural dynamics are emphasized through simple illustrative examples and exercises. Design methodologies and guidelines, which are FORM based concepts, are explained through a selection of applied sample structures. Each chapter also features tutorials and exercises for self-learning. A dedicated chapter on stochastic dynamics

helps students to extend the basic concepts of structural dynamics to this advanced domain of research. Hydrodynamic response of offshore structures with perforated members is one of the most recent research applications, and has proven to be one of the most effective means of retrofitting offshore structures. In addition, the book integrates the concepts of structural dynamics with the FORM-evolved design of offshore structures, offering a unique approach. This new edition is divided into seven chapters, each of which has been updated. Each chapter also includes a section on frequently asked Questions and Answers (Q&A), which enhances understanding of this complex subject through easy and self-explanatory text. Furthermore, the book presents valuable content with respect to new and recent research carried out by the author in structural dynamics. All numeric examples have been re-checked with more additional explanations. New exercises have been added to improve understanding of the subject matter. Computer coding is also included (wherever possible) to aid computer-based learning of the contents of the book. The book can serve as a textbook for senior undergraduate and graduate courses in civil, structural, applied mechanics, mechanical, aerospace, naval architecture and ocean engineering programs. The book can also serve as a text for professional learning and development programs or as a guide for practicing and consulting offshore structural engineers. The contents of this book will be useful to graduate students, researchers, and professionals alike.

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