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Subsea Pipeline Design and Engineering—Paul Jukes 2015-03-20

Offshore Pipeline Design Elements—John B. Herlich 1981

Subsea Pipelines and Risers—Yong Bai 2005-12-19 Marine pipelines for the transportation of oil and gas have become a safe and reliable part of the expanding infrastructure put in place for the development of the valuable resources below the world's seas and oceans. The design of these pipelines is a relatively new technology and continues to evolve as the design of more cost effective pipelines becomes a priority and applications move into deeper waters and more hostile environments. This updated edition of a best selling title provides the reader with a scope and depth of detail related to the design of offshore pipelines and risers not seen before in a textbook format. With over 25 years experience, Professor Yong Bai has been able to assimilate the essence of the applied mechanics aspects of offshore pipeline system design in a form of value to students and designers alike. It represents an excellent source of up to date practices and knowledge to help equip those who wish to be part of the exciting future of this industry.


Offshore Pipelines—Boyun Guo, 2013-07-24 The development of oil and gas fields offshore requires specialized pipeline equipment. The structures must be strong enough to withstand the harshest environments, and ensure that production is not interrupted and remains economically feasible. However, recent events in the Gulf of Mexico have placed a new importance on maintenance and reliability. A new section, Condition Based Maintenance (CBM), introduces the subject of maintenance, written by Tian Ran Lin, Queensland University of Technology, and Yong Sun, CSIRO Earth Science and Resource Engineering. Two of the main objectives of CBM is maximizing reliability while preventing major or minor equipment malfunction and minimizing maintenance costs. In this new section, the authors deal directly with the multi-objective condition based maintenance optimization problem. CBM provides two major advantages: (1) an efficient approach for weighting maintenance objectives, and (2) a method for specifying physical methods for achieving those objectives. Maintenance cost and reliability objectives are calculated based on proportional hazards model and a control limit CBM replacement policy. Written primarily for engineers and management personnel working on offshore and deepwater oil and gas pipelines, this book covers the fundamentals needed to design, install, and commission pipeline projects. This new section along with a thorough update of the existing chapters represents a 30% increase in information over the previous edition. Covers offshore maintenance and maintenance support system. Provides the fundamentals needed to design, install, and commission pipeline project. Methods and tools to deliver cost effective maintenance cost and system reliability. New section on Condition-Based Maintenance written by Tian Ran Lin, Queensland University of Technology, and Yong Sun, CSIRO Earth Science and Resource Engineering (yong.sun@csiro.au).

Subsea Engineering Handbook—Yong Bai 2018-11-15 The offshore industry continues to drive the oil and gas market into deeper drilling depths, more advanced subsea systems, and cross into multiple disciplines to further technology and equipment. Engineers and managers have learned that in order to keep up with the evolving market, they must have an all-inclusive solution reference. Subsea Engineering Handbook, Second Edition remains the go-to-source for everything related to offshore oil and gas engineering. Enhanced with new information spanning control systems, equipment QRA, electric tree structures, and manifold designs, this reference is still the one product engineers rely on to understand all components of subsea engineering. Packed with subsea processing and boosting equipment as well as coverage on newer valves and actuators, this handbook explains subsea challenges and discussions in a well-organized manner for both new and veteran engineers to utilize throughout their careers. Subsea Engineering Handbook, Second Edition remains the critical road map to understand all subsea equipment and technology. Gain access to the entire spectrum of subsea engineering, including the very latest on equipment, safety, and flow assurance systems. Sharpen your knowledge with new content coverage on subsea valves and actuators, multiphase flow loop design, tree and manifold design as well as subsea control Practice and learn with new real-world test examples and case studies.

Piping and Pipeline Engineering—George A. Antaki 2003-05-28 Taking a big-picture approach, Piping and Pipeline Engineering: Design, Construction, Maintenance, Integrity, and Repair elucidates the fundamental steps to any successful piping and pipeline engineering project, whether it is routine maintenance or a new multi-million dollar project. The author explores the qualitative details, calculations, and t

Marine Structural Design—Yong Bai 2015-09-18 Marine Structural Design, Second Edition, is a wide-ranging, practical guide to marine structural analysis and design, describing in detail the application of modern structural engineering principles to marine and offshore structures. Organized in five parts, the book covers basic structural design principles, strength, fatigue, and fracture, and reliability and risk assessment, providing all the knowledge needed for limit-state design and re-assessment of existing structures. Updates to this edition include new chapters on structural health monitoring and risk-based decision-making, arctic marine structural development, and the addition of new LNG ship topics, including composite materials and structures, uncertainty analysis, and green ship concepts. Provides the structural design principles, background theory, and know-how needed for marine and offshore structural design by analysis. Covers strength, fatigue and fracture, reliability, and risk assessment together in one resource, emphasizing practical considerations and applications. Updates to this edition include new chapters on structural health monitoring and risk-based decision making, and new content on arctic marine structural design.

Advances in Subsea Pipeline Engineering and Technology—C.P. Ellinas 2012-12-06 Dr C P Ellinas Advanced Mechanics & Engineering Ltd Major advances have been achieved in recent years in subsea pipeline design and installation. Inspection, maintenance and repair have also received much attention. The development of marginal fields has brought with it special problems, which have necessitated novel methods and innovations. Meanwhile interest in the development of deepwater fields continues with the development of new technology. This Conference has placed emphasis in addressing developments in pipeline technology under four main headings: pipeline/seabed interaction; flexible pipelines; pipeline design, fabrication and installation; deepwater applications. Advances in North Sea technology over the last decade have been significant and varied. Advances in marginal fields, small diameter pipelines and new materials, which are well covered in the first three topics. Economic development of marginal fields requires processing of oil and gas to take place not at the wellhead but at existing facilities, usually some distance away. Hydrocarbons are thus often transported at high pressure and temperature in small diameter pipelines, which need to be protected through trenching. However, such operational practice has brought to the fore a problem that in the past was of little concern namely, upheaval buckling.

Developments in the Analysis and Design of Marine Structures—Jørgen Amdahl 2021-12-17 Developments in the Analysis and Design of Marine Structures is a collection of papers presented at MARSTRUCT 2021, the 8th International Conference on Marine Structures (by remote transmission, 7-9 June 2021, organised by the Department of Marine Technology of the Norwegian University of Science and Technology, Trondheim, Norway), and is essential reading for academics, engineers and professionals involved in the design of marine and offshore structures. The MARSTRUCT Conference series deals with Ship and Offshore Structures, addressing topics in the fields of: - Methods and Tools for Loads and Load Effects; - Methods and Tools for Strength Assessment; - Experimental Analysis of Structures; - Materials and Fabrication of Structures; - Methods and Tools for Structural Design and Optimisation; - Structural Reliability, Safety and Environmental Protection. The MARSTRUCT conferences series of started in Glasgow, UK in 2007, the second event of the series took place in Lisbon, Portugal in March 2009, the third in Hamburg, Germany in March 2011, the fourth in Espoo, Finland in March 2013, the fifth in Southampton, UK in March 2015, the sixth in Lisbon, Portugal in May 2017, and the seventh in Dubrovnik, Croatia in May 2019. The Proceedings of ‘Developments in Marine Technology and Ocean Engineering’ series is dedicated to the publication of proceedings of peer-reviewed international conferences dealing with various aspects of ‘Marine Technology and Ocean Engineering’. The Series includes the proceedings of the following conferences: the International Maritime Association to under the Mediterranean (INAM) conferences, the Marine Structures (MARSTRUCT) conferences, the Renewable Energies Offshore (RENEW) conferences and the Maritime Technology (MARTECH) conferences. The ‘Marine Technology and Ocean Engineering’ series is also open to new conferences that cover topics on the sustainable exploration and exploitation of marine resources in various fields, such as maritime
transport and ports, usage of the ocean including coastal areas, nautical activities, the exploration and exploitation of mineral resources, the protection of the marine environment and its resources, and risk analysis, safety and reliability. The aim of the series is to stimulate advanced education and training through the wide dissemination of the results of scientific research.

Frontiers in Offshore Geotechnics II-Susan Gouveia 2010-10-04 Frontiers in Offshore Geotechnics II comprises the Proceedings of the Second International Symposium on Frontiers in Offshore Geotechnics (ISFOG), organised by the Centre for Offshore Foundation Systems (COFS) and held at the University of Western Australia (UWA), Perth from 8 10 November 2010. The volume addresses current and emerging challenges

Corrosion Control for Offshore Structures-Ramesh Singh 2014-08-12 A variable game changer for those companies operating in hostile, corrosive marine environments, Corrosion Control for Offshore Structures provides critical corrosion control tips and techniques that will prolong structural life while saving millions in cost. In this book, Ramesh Singh explains the ABCs of prolonging structural life of platforms and pipelines while reducing cost and decreasing the risk of failure. Corrosion Control for Offshore Structures places major emphasis on the popular use of cathodic protection (CP) combined with high efficiency coating to prevent subsea corrosion. This reference begins with the fundamentals of corrosion and then moves on to cover more advanced topics such as cathodic protection, coating as corrosion prevention using mill applied coatings, field applications, and the advantages and limitations of some common coating systems. In addition, the author provides expert insight on a number of NACE and DNV standards and recommended practices as well as ISO and Standard and Test Methods. Packed with tables, charts and case studies, Corrosion Control for Offshore Structures is a valuable guide to offshore corrosion control both in terms of its theory and application. Prolong the structural life of your offshore platforms and pipelines Understand critical topics such as cathodic protection and coating as corrosion prevention with mill applied coatings Gain expert insight on a number of NACE and DNV standards and recommended practices as well as ISO and Standard Test Methods.

Handbook of Offshore Engineering-Subrata Kumar Chakrabarti 2005

Deepwater Flexible Risers and Pipelines-Yong Bai 2020-12-31 The technology, processes, materials, and theories surrounding pipeline construction, application, and troubleshooting are constantly changing, and this new series, Advances in Pipes and Pipelines, has been created to meet the needs of engineers. The fundamentals and knowledge of all of these advances. This second volume in the series focuses on offshore pipelines, risers, and umbilicals, offering the engineer the most thorough coverage of the state-of-the-art available. The authors of this work have written numerous books and papers on these subjects and are some of the most influential authors on flexible pipes in the world, contributing much of the literature on this subject to the industry. This new volume is a presentation of some of the most cutting-edge technological advances in technical publishing. The first volume in this series, published by Wiley-Screven, is Flexible Pipes, available at www.wiley.com. Laying the foundation for the series, it is a groundbreaking work, written by some of the world's foremost authorities on pipes and pipelines. Continuing in this series, the editors have compiled the second volume, equally as groundbreaking, expanding the scope to pipelines, risers, and umbilicals. This is the most comprehensive and in-depth series on pipelines, covering not just the various materials and their aspects that make them different, but every process that goes into their installation, operation, and design. This is the future of pipelines, and it is an important breakthrough. A must-have for the veteran engineer and student alike, this volume is an important new advancement in the energy industry, a strong link in the chain of the world's energy production.

Progress in the Analysis and Design of Marine Structures-Carlos Guedes Soares 2017-04-28 Progress in the Analysis and Design of Marine Structures collects the contributions presented at MARSTRUCT 2017, the 6th International Conference on Marine Structures (Lisbon, Portugal, 8-10 May 2017). The MARSTRUCT series of Conferences started in Glasgow, UK in 2007, the second event of the series having taken place in Lisbon, Portugal in March 2009, the third in Hamburg, Germany in March 2011, the fourth in Espoo, Finland in March 2013, and the fifth in Southampton, UK in March 2015. This Conference series deals with Ship and Offshore Structures, addressing topics in the areas of: - Methods and Tools for Loads and Load Effects - Methods and Tools for Strength Assessment - Experimental Analysis of Structures - Materials and Fabrication of Structures - Methods and Tools for Structural Design and Optimisation, and - Structural Reliability, Safety and Environmental Protection Progress in the Analysis and Design of Marine Structures is essential reading for academics, engineers and all professionals involved in the design of marine and offshore structures.

Pipelines and Risers-Yong Bai 2001 The preparation of this book was motivated by recent developments in research and engineering and new design codes. It aims to educate more pipeline engineers and provide materials for on-job training on the use of new design codes and guides.

Subsea Pipeline Engineering-Andrew Cennell Palmer 2004 Authored by two of the world’s most respected authorities in subsea pipeline engineering, this definitive reference book covers the entire spectrum of subjects in the discipline, from route selection and planning to design, construction, installation, materials and corrosion, inspection, welding, repair, risk assessment, and applicable design codes and standards. Particular attention is also devoted to the important specialized subjects of hydraulics, strength, stability, fracture, and buckling.

Gas Pipeline Hydraulics-Shashi Menon 2013-04 This book is concerned with the steady state hydraulics of natural gas and other compressible fluids being transported through pipelines. Our main approach is to determine the flow rate possible and compressor station horsepower required within the limitations of pipe strength, based on the pipe materials and grade. It addresses the scenarios where one or more compressors may be required depending on the gas flow rate and if discharge cooling is needed to limit the gas temperatures. The book is the result of over 38 years of the authors’ experience on pipelines in North and South America while working for major energy companies such as ARCO, El Paso Energy, etc.

Mechanics of Offshore Pipelines-Stelios Kyriakides 2007-07-26 Offshore oil and gas production was conducted throughout the entire 20th century, but the industry’s modern importance and vibrancy did not start until the early 1970s, when the North Sea became a major producer. Since then, the expansion of the offshore oil industry has been continuous and rapid. Pipelines, and more generally long tubular structures, are major oil and gas industry tools used in exploration, drilling, production, and transmission. Installing and operating tubular structures in deep waters places unique demands on them. Technical challenges within the field have spawned significant research and development efforts in a broad range of areas. Volume I addresses problems of buckling and collapse of long inelastic cylinders under various loads encountered in the offshore area. Several of the solutions are also directly applicable to land pipelines. The approach of Mechanics of Offshore Pipelines is problem oriented. The background of each problem and scenario is first outlined and each discussion finishes with design recommendations. * New and classical problems addressed - investigated through a combination of experiments and analysis * Each chapter deals with a specific mechanical problem that is analyzed independently * The fundamental nature of the problems makes them also applicable to other fields, including tubular components in nuclear reactors and power plants, aerospace structures, automotive and civil engineering structures, naval vehicles and structures

Bolting Reliability for Offshore Oil and Natural Gas Operations-National Academies of Sciences, Engineering, and Medicine 2018-03-26 The Planning Committee on Connector Reliability for Offshore Oil and Natural Gas Operations held the Workshop on Bolting Reliability for Offshore Oil and Natural Gas Operations in Washington, D.C., on April 10-11, 2017. The workshop was designed to advance and develop a comprehensive awareness of the outstanding issues associated with fastener material failures and equipment reliability issues. Speakers and participants were also encouraged to discuss possible paths for ameliorating risks associated with fasteners used for such critical equipment in oil and gas operations. This publication summarizes the presentations and discussions from the workshop.

Flexible Pipes-Qiang Bai 2017-03-31 Recent changes in the codes for
Wax Deposition—Zhenyu Huang 2016-03-09 Wax Deposition: Experimental Characterizations, Theoretical Modeling, and Field Practices covers the entire spectrum of knowledge on wax deposition. The book delivers a detailed description of the thermodynamic and transport theories for wax deposition modeling as well as a comprehensive review of laboratory testing for the establishment of appropriate field control strategies. Offering valuable insight from academic research and the flow assurance industry, this balanced text discusses the background of wax deposition and the cause of the phenomenon, the magnitude of the problem, and its impact on petroleum production. Introduces laboratory techniques and theoretical models to measure and predict key parameters of wax precipitation, such as the wax appearance temperature and the wax precipitation curve. Explains how to conduct and interpret laboratory experiments to benchmark different wax deposition models, to better understand wax deposition behaviors, and to predict wax deposit growth for the field. Presents various models for wax deposition, analyzing the advantages and disadvantages of each and evaluating the differences between the assumptions used. Provides numerous examples of how field management strategies for wax deposition can be established based on laboratory testing and modeling work. Wax Deposition: Experimental Characterizations, Theoretical Modeling, and Field aids flow assurance engineers in identifying the severity and controlling the problem of wax deposition. The book also shows students and researchers how fundamental principles of thermodynamics, heat, and mass transfer can be applied to solve a problem common to the petroleum industry.

Flexible Pipes—Qiang Bai 2017-04-19 Recent changes in the codes for building pipelines has led to a boom in the production of new materials that can be used in flexible pipes. With the use of polymers, steel, and other new materials and variations on existing materials, the construction and, therefore, the installation and operation of flexible pipes is changing and being improved upon all over the world. The authors of this work have written numerous books and papers on these subjects and are some of the most influential authors on flexible pipes in the world, contributing much of the literature on this subject to the industry. This new volume is a presentation of some of the most cutting-edge technological advances in technical publications. The book is the most comprehensive book on this subject, covering not just the various materials and their aspects that make them different, but every process that goes into their installation, operation, and design. The thirty-six chapters, divided up into four different parts, have not just the authors of this text but literally dozens of other engineers who are some of the world’s leading scientists in this area contribute to the work. This is the future of pipelines, and it is an important breakthrough. A must-have for the veteran engineer and student alike, this volume is an important new advancement in the energy industry, a strong link in the chain of the world’s energy production.

Maritime Technology and Engineering III—Carlos Guedes Soares 2016-12-01 Maritime Technology and Engineering III is a collection of papers presented at the 3rd International Conference on Maritime Technology and Engineering (MARTECH 2016, Lisbon, Portugal, 4-6 July 2016). The MARTECH Conferences series evolved from biannual national conferences in Portugal, thus reflecting the internationalization of the maritime sector. The keynote lectures and the papers, making up nearly 150 contributions, came from an international group of authors focused on different subjects in a variety of fields: Maritime Transportation, Energy Efficiency, Ships in Ports, Ship Hydrodynamics, Ship Structures, Ship Design, Ship Machinery, Shipyard Technology, Safety & Reliability, Fisheries, Oil & Gas, Marine Environment, Renewable Energy and Coastal Structures. This book will appeal to academics, engineers and professionals interested or involved in these fields.

Computational Rheology for Pipeline and Annular Flow—Wilson C. Chin, PhD 2001-07-30 Computational Rheology for Pipeline and Annular Flow develops and applies modern analytical and computational finite difference methods for solving flow problems in drilling and production. It also provides valuable insights into flow assurance analysis in subsea pipeline design. Using modeling techniques that simulate the motion of non-Newtonian fluids, e.g., power law, Bingham plastic, and Herschel-Bulkley flows, this book presents proven annular flow methodologies for cuttings transport and stuck pipe analysis based on detailed experimental data obtained from highly deviated and horizontal wells. These methods are applied for highly eccentric borehole geometries to the design of pipeline bundles in subsea well configurations, where such annular flow phenomena arise. The computational techniques are supported by the appropriate theoretical background information: for example, hydrodynamics and numerical analysis methods of fluid and stress analysis. The full editorial team and contributing authors are drawn worldwide from renowned engineers, scientists and practitioners in both the academic and industrial sectors.

Underground Pipeline Corrosion—Mark Orazem 2014-02-17 Underground pipelines transporting liquid petroleum products and natural gas are critical components of civil infrastructure, making corrosion prevention an essential part of asset-protection strategy. Underground Pipeline Corrosion provides a basic understanding of the problems associated with corrosion detection and mitigation, and of the state of the art in corrosion prevention. The topics covered in part one include: basic principles for corrosion in underground pipelines, AC-induced corrosion of underground pipelines, significance of corrosion in onshore oil and gas pipelines, numerical simulations for cathodic protection of pipelines, and use of corrosion inhibitors in managing corrosion in underground pipelines. The methods described in part two for detecting corrosion in underground pipelines include: magnetic flux leakage, close interval potential surveys (CIS/CIPS), Pearson surveys, in-line inspection, and use of both electrochemical and optical probes. While the emphasis is on transporting metallic fuels, the concepts apply as well to metallic pipes for delivery of water and other liquids. Underground Pipeline Corrosion is a comprehensive resource for corrosion, materials, chemical, petroleum, and civil engineers constructing or managing both onshore and offshore pipeline assets; professionals in steel and coating companies; and academic researchers and professors with an interest in operation and pipeline engineering. Reviews the causes and considers the detection and prevention of corrosion to underground pipes. Addresses a lack of current, readily available information on the subject. Case studies demonstrate how corrosion is managed in the underground pipeline industry.

The Mechanics of Scour in the Marine Environment—B. Mutlu Sumer 2002 Treats the subject of local scour around different kinds of marine structures, exposed to waves and/or currents.

Encyclopedia of Maritime and Offshore Engineering—John Carlton 2018-07-16 The Encyclopedia of Maritime and Offshore Engineering (EMOE) provides an unparalleled major reference work covering the design, construction and operation of ships, offshore installations and other marine structures used for transportation, exploration and the exploitation of ocean-based resources including oil, gas and renewable energy. It embraces all of the disciplines of engineering and naval architecture that are found in the complementary marine and offshore industries. Advances in ship technology, the growth of the offshore energy sector, and increasing activities in arctic and ultra-deepwater environments all highlight the need for an up-to-date reference work on the proposed scale. Operational and regulatory aspects of maritime industries will also be included. The technical sections are supported by the appropriate theoretical background information: for example, hydrodynamics and numerical analysis methods of fluid and stress analysis. The full editorial team and contributing authors is drawn worldwide from renowned engineers, scientists and practitioners in both the academic and industrial sectors.

Engineering Challenges for Sustainable Future—Noor Amila Wan Abdullah Zawawi 2016-12-01 Engineering Challenges for Sustainable Future contains the papers presented at the 3rd International Conference on Environment, Renewable Energy and Coastal Structures. This book will contribute to the work. This is the future of pipelines, and it is an important breakthrough. A must-have for the veteran engineer and student alike, this volume is an important new advancement in the energy industry, a strong link in the chain of the world’s energy production.

Subsea Pipeline Design—Analysis and Installation—John Carlton 2018-07-16 The Encyclopedia of Maritime and Offshore Engineering (EMOE) provides an unparalleled major reference work covering the design, construction and operation of ships, offshore installations and other marine structures used for transportation, exploration and the exploitation of ocean-based resources including oil, gas and renewable energy. It embraces all of the disciplines of engineering and naval architecture that are found in the complementary marine and offshore industries. Advances in ship technology, the growth of the offshore energy sector, and increasing activities in arctic and ultra-deepwater environments all highlight the need for an up-to-date reference work on the proposed scale. Operational and regulatory aspects of maritime industries will also be included. The technical sections are supported by the appropriate theoretical background information: for example, hydrodynamics and numerical analysis methods of fluid and stress analysis. The full editorial team and contributing authors is drawn worldwide from renowned engineers, scientists and practitioners in both the academic and industrial sectors.
on Civil, Offshore & Environmental Engineering (ICCOEE2016, Kuala Lumpur, Malaysia, 15-17 August 2016), under the banner of World Engineering, Science & Technology Congress (ESTCON2016). The ICCOEE series of conferences started in Kuala Lumpur, Malaysia 2012, and the second event of the series took place in Kuala Lumpur, Malaysia 2014. This conference series deals with the civil, offshore & environmental engineering field, addressing the following topics: • Environmental and Water Resources Engineering • Coastal and Offshore Engineering • Structures and Materials • Construction and Project Management • Highway, Geotechnical and Transportation Engineering and Geo-informatics This book is an essential reading for academic, engineers and all professionals involved in the area of civil, offshore and environmental engineering.