

## Iso 19901 1 2015 Petroleum And Natural Gas Industries

This book provides essential insights into recent developments in fundamental geotechnical engineering research. Special emphasis is given to a new family of constitutive soil description methods, which take into account the recent loading history and the dilatancy effects. Particular attention is also paid to the numerical implementation of multi-phase material under dynamic loads, and to geotechnical installation processes. In turn, the book addresses implementation problems concerning large deformations in soils during piling operations or densification processes, and discusses the limitations of the respective methods. Numerical simulations of dynamic consolidation processes are presented in slope stability analysis under seismic excitation. Lastly, achieving the energy transition from conventional to renewable sources will call for geotechnical expertise. Consequently, the book explores and analyzes a selection of interesting problems involving the stability and serviceability of supporting structures, and provides new solutions approaches for practitioners and scientists in geotechnical engineering. The content reflects the outcomes of the Colloquium on Geotechnical Engineering 2019 (Geotechnik Kolloquium), held in Karlsruhe, Germany in September 2019.

Progress in Renewable Energies Offshore includes the papers presented in the 2nd International Conference on Renewable Energies Offshore (RENEW2016, Lisbon, Portugal, 24-26 October 2016). The scope of the book is broad, covering all aspects of renewable energies offshore activities such as resource assessment; wind energy; wave energy; tidal energy; ocean energy devices; multiuse platforms; PTO design; grid connection; economic assessment; installation and maintenance planning. The contents of the present book are organized in these main subject areas corresponding to the sessions in the Conference. The conference reflects the importance of the renewable energies offshore worldwide and is an opportunity to contribute to the exchange of information on the developments and experience obtained in concept development, design and operation of these devices. Progress in Renewable Energies Offshore has as main target academics and professionals working in the related areas of renewable energies.

The mooring system is a vital component of various floating facilities in the oil, gas, and renewables industries. However, there is a lack of comprehensive technical books dedicated to the subject. Mooring System Engineering for Offshore Structures is the first book delivering in-depth knowledge on all aspects of mooring systems, from design and analysis to installation, operation, maintenance and integrity management. The book gives beginners a solid look at the fundamentals involved during mooring designs with coverage on current standards and codes, mooring analysis and theories behind the analysis techniques. Advanced engineers can stay up-to-date through operation, integrity management, and practical examples provided. This book is recommended for students majoring in naval architecture, marine or ocean engineering, and allied disciplines in civil or mechanical engineering. Engineers and researchers in the offshore industry will benefit from the knowledge presented to understand the various types of mooring systems, their design, analysis, and operations. Understand the various types of mooring systems and the theories behind mooring analysis Gain practical experience and lessons learned from worldwide case studies Combine engineering fundamentals with practical applications to solve today's offshore challenges

This book explains vessels' ability to overcome ice on the Northern Sea Route, as well as the criteria of safe speed and maneuvering of vessels on ice. It provides a successful long-term forecast of ice navigation and reveals the dangers of sailing on the Northern Sea Route, It includes tips on how to plan and schedule voyages in the Russian Arctic. The book develops a set of suggested routes for the period of opening and closing of the transit ice-free zone through the NSR based on the last eleven navigation seasons. It presents a method for determining the date for beginning a voyage of a vessel without ice strengthening through the NSR. It also develops a model of initial (long-term) and operational decision-making support system for vessel voyage planning and scheduling. The main audience for the book are officers at operational and management level of competency, people planning voyages on the Northern Sea Route in the office of ship operator and in chartering department or consulting company, and participants of Ice Navigator IMO Model Courses at basic and advanced level of competency.

This book describes the current state of international grape genomics, with a focus on the latest findings, tools and strategies employed in genome sequencing and analysis, and genetic mapping of important agronomic traits. It also discusses how these are having a direct impact on outcomes for grape breeders and the international grape research community. While *V. vinifera* is a model species, it is not always appreciated that its cultivation usually requires the use of other *Vitis* species as rootstocks. The book discusses genetic diversity within the *Vitis* genus, the available genetic resources for breeding, and the available genomic resources for other *Vitis* species. Grapes (*Vitis vinifera* spp. *vinifera*) have been a source of food and wine since their domestication from their wild progenitor (*Vitis vinifera* ssp. *sylvestris*) around 8,000 years ago, and they are now the world's most valuable horticultural crop. In addition to being economically important, *V. vinifera* is also a model organism for the study of perennial fruit crops for two reasons: Firstly, its ability to be transformed and micropropagated via somatic embryogenesis, and secondly its relatively small genome size of 500 Mb. The economic importance of grapes made *V. vinifera* an obvious early candidate for genomic sequencing, and accordingly, two draft genomes were reported in 2007. Remarkably, these were the first genomes of any fruiting crop to be sequenced and only the fourth for flowering plants. Although riddled with gaps and potentially omitting large regions of repetitive sequences, the two genomes have provided valuable insights into grape genomes. Cited in over 2,000 articles, the genome has served as a reference in more than 3,000 genome-wide transcriptional analyses. Further, recent advances in DNA sequencing and bioinformatics are enabling the assembly of reference-grade genome references for more grape genotypes revealing the exceptional extent of structural variation in the species.

Physical Modelling in Geotechnics collects more than 1500 pages of peer-reviewed papers written by researchers from over 30 countries, and presented at the 9th International Conference on Physical Modelling in Geotechnics 2018 (City, University of London, UK 17-20 July 2018). The ICPMG series has grown such that two volumes of proceedings were required to publish all contributions. The books represent a substantial body of work in four years. Physical Modelling in Geotechnics contains 230 papers, including eight keynote and themed lectures representing the state-of-the-art in physical modelling research in aspects as diverse as fundamental modelling including sensors, imaging, modelling techniques and scaling, onshore and offshore foundations, dams and embankments, retaining walls and deep excavations, ground improvement and environmental engineering, tunnels and geohazards including significant contributions in the area of seismic engineering. ISSMGE TC104 have identified areas for special attention including education in physical modelling and the promotion of physical modelling to industry. With this in mind there is a special themed paper on education, focusing on both undergraduate and postgraduate teaching as well as practicing geotechnical engineers. Physical modelling has entered a new era with the advent of exciting work on real time interfaces between physical and numerical modelling and the growth of facilities and expertise that enable development of so called 'megafuges' of 1000gtonne capacity or more; capable of modelling the largest and most complex of geotechnical challenges. Physical Modelling in Geotechnics will be of interest to professionals, engineers and academics interested or involved in geotechnics, geotechnical engineering and related areas. The 9th International Conference on Physical Modelling in Geotechnics was organised by the Multi Scale Geotechnical Engineering Research Centre at City, University of London under the auspices of Technical Committee 104 of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). City, University of London, are pleased to host the prestigious international conference for the first time having initiated and hosted the first regional conference, Eurofuge, ten years ago in 2008. Quadrennial regional conferences in both Europe and Asia are now well established events giving doctoral

researchers, in particular, the opportunity to attend an international conference in this rapidly evolving specialist area. This is volume 1 of a 2-volume set.

Benefit from a much-needed, up-to-date handbook on underwater inspection and repair processes and technologies Underwater Inspection and Repair for Offshore Structures fills a gap in the literature to provide an overview of the inspection and repair processes for both steel and concrete offshore structures. Authors and noted experts on the topic John Sharp and Gerhard Esdal guide readers through the reasons why inspection and repair are performed and how both are linked to the management of structural integrity, statutory requirements and various types of damage. The book addresses critical topics, including the execution and planning of inspection and repair and the tools and methods used and their deployment underwater. The authors put particular focus on steel and concrete offshore oil and gas installations, but the content is also applicable to the substructures of offshore wind turbines. Underwater Inspection and Repair for Offshore Structures is complementary to the authors' book Ageing and Life Extension of Offshore Structures, also from Wiley. This important book: Covers current inspection and monitoring techniques to evaluate existing structures Includes coverage of robotic (ROV) inspection and repair methods Provides an overview of repair and maintenance techniques applicable to the splash-zone and underwater operations Written for engineers, designers and safety auditors working with offshore structures. Underwater Inspection and Repair for Offshore Structures is a comprehensive resource for understanding how to effectively inspect and repair these vulnerable structures.

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

Recent developments in the fields of energy, transport and industrial engineering have led to the emergence of new types of structures and infrastructures subject to variable stresses, for which the usual methods for designing pile foundations are now inadequate. The recommendations presented in this book will help to partly fill this technical gap by proposing a methodological approach and calculation methods to take account of the effects of cyclic loads in the design of foundations on piles. These are based on both laboratory and full scale experiments, and on modeling carried out within the framework of the national SOLCYP project.

Petroleum and Natural Gas Industries. Specific Requirements for Offshore Structures. Metocean Design and Operating Considerations

'The editors of this handbook have brought together 58 of the world's greatest environmental systems experts. These professionals have, in 46 specific topic headings, divided into six major sections, provided very insightful information and guidance as to what industrial ecology entails, how it can be implemented, and its benefits . . . a very valuable tool . . . This book provides essential information to mid- and top-level management that can enable industry to make more prudent business decisions regarding the manufacturing of its products.' - Robert John Klancko, Environmental Practice Industrial ecology is coming of age and this superb book brings together leading scholars to present a state-of-the-art overview of the subject.

Offshore Structures: Design, Construction and Maintenance, Second Edition covers all types of offshore structures and platforms employed worldwide. As the ultimate reference for selecting, operating and maintaining offshore structures, this book provides a roadmap for designing structures which will stand up even in the harshest environments. Subsea pipeline design and installation is also covered in this edition, as is the selection of the proper type of offshore structure, the design procedure for the fixed offshore structure, nonlinear analysis (Push over) as a new technique to design and assess the existing structure, and more. With this book in hand, engineers will have the most up-to-date methods for performing a structural lifecycle analysis, implementing maintenance plans for topsides and jackets and using non-destructive testing. Provides a one-stop guide to offshore structure design and analysis Presents easy-to-understand methods for structural lifecycle analysis Contains expert advice for designing offshore platforms for all types of environments

This book contains papers presented in the 6th International Conference on Civil, Offshore & Environmental Engineering (ICCOEE2020) under the banner of World Engineering, Science & Technology Congress (ESTCON2020) will be held from 13th to 15th July 2021 at Borneo Convention Centre, Kuching, Sarawak, Malaysia. This proceeding contains papers presented by academics and industrial practitioners showcasing the latest advancements and findings in civil engineering areas with an emphasis on sustainability and the Industrial Revolution 4.0. The papers are categorized under the following tracks and topics of research: 1. Resilient Structures and Smart Materials 2. Advanced Construction and Building Information Modelling 3. Smart and Sustainable Infrastructure 4. Advanced Coastal and Offshore Engineering 5. Green Environment and Smart Water Resource Management Systems

Plants are important for a permanent ecosystem, because in the ecological pyramid plants support all the other living organisms at the base. Very important organization is thought to be the integral process of resource, transport, partitioning, metabolism, and production, which involves yield, biomass, and productivity in plants. Accordingly, it is important to obtain more information about the knowledge concerning yield, biomass, and productivity in plants. Soybean is one of the main crops largely contributing to our life, which is thought to be connected to our ecosystem through the above-mentioned integral process. This book focuses on the soybean, and reviews and research concerning the yield, biomass, and productivity of soybean are presented herein. This text updates the book published in 2017.

Although there are many difficulties, the main aim of this book is to present a basis for the above-mentioned integral processes of resource, transport, partitioning, metabolism, and production, which involves yield, biomass, and productivity in plants (soybean), and to understand what supports this basis and the integral process. It is hoped that this and the preceding book will be essential reads.

This book comprises select proceedings of the First Indian Symposium on Offshore Geotechnics. It addresses state of the art and emerging challenges in offshore design and construction. The theme papers from leading academicians and practitioners provide a comprehensive overview of the broad topics encompassing various challenges in offshore geotechnical engineering. It covers various aspects pertaining to offshore geotechnics, such as offshore site investigation, soil characterization, geotechnics related to offshore renewable energy converters, offshore foundations and anchoring systems, pipelines, and deep sea explorations. This volume provides a comprehensive reference for professionals and researchers in offshore, civil and maritime engineering and for soil mechanics specialists.

Written to Eurocode 7 and the UK National Annex Updated to reflect the current usage of Eurocode 7, along with relevant parts of the British Standards, Pile Design and Construction Practice, Sixth Edition maintains the empirical correlations of the original-combining practical know how with scientific knowledge-and emphasizing relevant principles an

Selected, peer reviewed papers from the 13th International Aluminium Conference - INALCO 2016, September 21-23, 2016, Naples, Italy

Geotechnical Risk and Safety V contains contributions presented at the 5th International Symposium on Geotechnical Safety and Risk (5th ISGSR, Rotterdam, 13-16 October 2015) which was organized under the auspices of the Geotechnical Safety Network (GEOSNet) and the following technical committees of the of the International Society of Soil Mechanics and Geotechnical Engineering (ISSGME): • TC304 Engineering Practice of Risk Assessment & Management • TC205 Safety and Serviceability in Geotechnical Design • TC212 Deep Foundations • TC302 Forensic Geotechnical Engineering Geotechnical Risk and Safety V covers seven themes: 1. Geotechnical Risk Management and Risk Communication 2. Variability in Ground Conditions and Site Investigation 3. Reliability and Risk Analysis of Geotechnical Structures 4. Limit-state design in Geotechnical



Engineering 5. Assessment and Management of Natural Hazards 6. Contractual and Legal Issues of Foundation and (Under)Ground Works 7. Case Studies, Monitoring and Observational Method The 5th ISGSR is the continuation of a series of symposiums and workshops on geotechnical risk and reliability, starting with LSD2000 (Melbourne, Australia), IWS2002 (Tokyo and Kamakura, Japan), LSD2003 (Cambridge, USA), Georisk2004 (Bangalore, India), Taipei2006 (Taipei, Taiwan), the 1st ISGSR (Shanghai, China, 2007), the 2nd ISGSR (Gifu, Japan, 2009), the 3rd ISGSR (Munich, Germany, 2011) and the 4th ISGSR (Hong Kong, 2013).

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.

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.

Cone Penetration Testing 2018 contains the proceedings of the 4th International Symposium on Cone Penetration Testing (CPT'18, Delft, The Netherlands, 21-22 June 2018), and presents the latest developments relating to the use of cone penetration testing in geotechnical engineering. It focuses on the solution of geotechnical challenges using the cone penetration test (CPT), CPT add-on measurements and companion in-situ penetration tools (such as full flow and free fall penetrometers), with an emphasis on practical experience and application of research findings. The peer-reviewed papers have been authored by academics, researchers and practitioners from many countries worldwide and cover numerous important aspects, ranging from the development of innovative theoretical and numerical methods of interpretation, to real field applications. This is an Open Access ebook, and can be found on [www.taylorfrancis.com](http://www.taylorfrancis.com).

This book is a printed edition of the Special Issue "Magnesium Intake and Human Health" that was published in *Nutrients*

Das Grundbau-Taschenbuch ist das bekannteste und umfangreichste deutschsprachige Kompendium auf dem Gebiet der Geotechnik und hat seit über 60 Jahren zum Ziel, Entwicklungen, neue Erfahrungen und Erkenntnisse, aktuelle und neue Berechnungs- und Nachweismethoden für die Belange der Baupraxis umfassend zusammenzutragen und transparent zu vermitteln. Für die 8. Auflage wurde es umfassend überarbeitet und aktualisiert. Der dritte Teil des Grundbau-Taschenbuches behandelt Gründungen und geotechnische Bauwerke. Die einzelnen Beiträge decken Flach- und Tiefgründungen mit ihren Sicherheitsnachweisen, Pfähle, Spundwände, Schlitzwände, Baugruben, Senkkästen sowie Stützbauwerke ab. Ebenso vertieft werden Spezialfragen wie Gründung von Bauwerken in Bergbaugebieten, im offenen Wasser und von Offshore-Windenergieanlagen.

Engineering dynamics and vibrations has become an essential topic for ensuring structural integrity and operational functionality in different engineering areas. However, practical problems regarding dynamics and vibrations are in many cases handled without success despite large expenditures. This book covers a wide range of topics from the basics to advances in dynamics and vibrations; from relevant engineering challenges to the solutions; from engineering failures due to inappropriate accounting of dynamics to mitigation measures and utilization of dynamics. It lays emphasis on engineering applications utilizing state-of-the-art information.

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions contains invited, keynote and theme lectures and regular papers presented at the 7th International Conference on Earthquake Geotechnical Engineering (Rome, Italy, 17-20 June 2019). The contributions deal with recent developments and advancements as well as case histories, field monitoring, experimental characterization, physical and analytical modelling, and applications related to the variety of environmental phenomena induced by earthquakes in soils and their effects on engineered systems interacting with them. The book is divided in the sections below: Invited papers Keynote papers Theme lectures Special Session on Large Scale Testing Special Session on Liquefaction Projects Special Session on Lessons learned from recent earthquakes Special Session on the Central Italy earthquake Regular papers Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions provides a significant up-to-date collection of recent experiences and developments, and aims at engineers, geologists and seismologists, consultants, public and private contractors, local national and international authorities, and to all those involved in research and practice related to Earthquake Geotechnical Engineering.

In 2010, an international symposium on western redcedar (*Thuja plicata*) and yellow-cedar (*Callitropsis nootkatensis* [syn. *Chamaecyparis nootkatensis*]) was held at the Univ. of Victoria in British Columbia, Canada. The symposium brought together experts to present cultural, biological, management and economic information on the two species. Although some papers or posters focused on just one of the cedars, many of the presenters covered both species and discussed the similarities and differences between them. This proceedings includes abstracts or

short papers from all of the formal presentations or posters presented at the symposium. Charts and tables. This is a print on demand edition of an important, hard-to-find publication. Model Uncertainties in Foundation Design is unique in the compilation of the largest and the most diverse load test databases to date, covering many foundation types (shallow foundations, spudcans, driven piles, drilled shafts, rock sockets and helical piles) and a wide range of ground conditions (soil to soft rock). All databases with names prefixed by NUS are available upon request. This book presents a comprehensive evaluation of the model factor mean (bias) and coefficient of variation (COV) for ultimate and serviceability limit state based on these databases. These statistics can be used directly for AASHTO LRFD calibration. Besides load test databases, performance databases for other geo-structures and their model factor statistics are provided. Based on this extensive literature survey, a practical three-tier scheme for classifying the model uncertainty of geo-structures according to the model factor mean and COV is proposed. This empirically grounded scheme can underpin the calibration of resistance factors as a function of the degree of understanding – a concept already adopted in the Canadian Highway Bridge Design Code and being considered for the new draft for Eurocode 7 Part 1 (EN 1997-1:202x). The helical pile research in Chapter 7 was recognised by the 2020 ASCE Norman Medal. Principles of Nutrigenetics and Nutrigenomics: Fundamentals for Individualized Nutrition is the most comprehensive foundational text on the complex topics of nutrigenetics and nutrigenomics. Edited by three leaders in the field with contributions from the most well-cited researchers conducting groundbreaking research in the field, the book covers how the genetic makeup influences the response to foods and nutrients and how nutrients affect gene expression. Principles of Nutrigenetics and Nutrigenomics: Fundamentals for Individualized Nutrition is broken into four parts providing a valuable overview of genetics, nutrigenetics, and nutrigenomics, and a conclusion that helps to translate research into practice. With an overview of the background, evidence, challenges, and opportunities in the field, readers will come away with a strong understanding of how this new science is the frontier of medical nutrition. Principles of Nutrigenetics and Nutrigenomics: Fundamentals for Individualized Nutrition is a valuable reference for students and researchers studying nutrition, genetics, medicine, and related fields. Uniquely foundational, comprehensive, and systematic approach with full evidence-based coverage of established and emerging topics in nutrigenetics and nutrigenomics Includes a valuable guide to ethics for genetic testing for nutritional advice Chapters include definitions, methods, summaries, figures, and tables to help students, researchers, and faculty grasp key concepts Companion website includes slide decks, images, questions, and other teaching and learning aids designed to facilitate communication and comprehension of the content presented in the book Intermediate foundations are used as anchors for floating platforms and ancillary structures, foundations for steel jackets, and to support seafloor equipment and offshore wind turbines. When installed by suction, they are an economical alternative to piling, and also may be completely removed. They are usually circular in plan and are essentially rigid when laterally loaded. Length to diameter embedment ratios,  $L/D$ , generally vary between 0.5 and 10, spanning the gap between shallow and deep foundations, although these are indicative boundaries and the response, rather than the embedment ratio, defines an intermediate foundation. The first chapters introduce foundation types; compare shallow, intermediate and deep foundation models and design; define unique design issues that make intermediate foundations distinct from shallow and deep foundations, as well as list their hazards that mainly occur during installation. Later chapters cover installation, in-place resistance and in-place response, and miscellaneous design considerations. There is no general agreement as to which design methods/models are appropriate, so models should only be as accurate as the data. Therefore, several reasonably accurate models are provided together with comprehensive discussion and advice. Example calculations and over 200 references are also included. This is the first book dedicated to the geotechnical design of intermediate foundations, and it will appeal to professional engineers specialising in the offshore industry.

This book presents a study for the determination of environmental load factors for Jacket Platforms in Malaysia and a methodology to determine the life extension of aging platforms. The simplified methods described here could be used for determining not only structural reliability but also safety factors. Its content is particularly interesting to design and maintenance engineers who are working in offshore or onshore industry.

This new edition of an established title examines the determination of grain crop yield from a unique perspective, by concentrating on the influence of the seed itself. As the food supply for an expanding world population is based on grain crops harvested for their seeds, understanding the process of seed growth and its regulation is crucial to our efforts to increase production and meet the needs of that population. Yield of grain crops is determined by their assimilatory processes such as photosynthesis and the biosynthetic processes in the seed, which are partly regulated within the seed itself. Substantially updated with new research and further developments of the practical applications of the concepts explored, this book is essential reading for those concerned with seed science and crop yield, including agronomists, crop physiologists, plant breeders, and extension workers. It is also a valuable source of information for lecturers and graduate students of agronomy and plant physiology.

This book presents a comprehensive topical overview on soil dynamics and foundation modeling in offshore and earthquake engineering. The spectrum of topics include, but is not limited to, soil behavior, soil dynamics, earthquake site response analysis, soil liquefactions, as well as the modeling and assessment of shallow and deep foundations. The author provides the reader with both theory and practical applications, and thoroughly links the methodological approaches with engineering applications. The book also contains cutting-edge developments in offshore foundation engineering such as anchor piles, suction piles, pile torsion modeling, soil ageing effects and scour estimation. The target audience primarily comprises research experts and practitioners in the field of offshore engineering, but the book may also be beneficial for graduate students.

Wave energy has a higher potential than most of the available ocean energy resources; however, it fluctuates dramatically depending on geographical and temporal baselines. The complexity of wave energy is only exacerbated by that fact that the cycle of creation, transport, and disappearance of wave energy is influenced by a wide variety of factors. This Special Issue of Energies explores the latest developments in wave energy potential, behavior, and extraction. This Special Issue introduces 1) thorough reviews on the status of wave energy development, 2) novel technologies to extract wave energy including wave energy converter design, and 3) latest methodologies applied in analyzing wave energy potentials.

This book is a collection of invited lectures including the 5th Nicholas Ambraseys distinguished lecture, four keynote lectures and twenty-two thematic lectures presented at the 16th European Conference on Earthquake Engineering, held in Thessaloniki, Greece, in June 2018. The lectures are put into chapters written by the most prominent internationally recognized academics, scientists, engineers and researchers in Europe. They address a comprehensive collection of state-of-the-art and cutting-edge topics in earthquake engineering, engineering seismology and seismic risk assessment and management.

The book is of interest to civil engineers, engineering seismologists, seismic risk managers, policymakers and consulting companies covering a wide spectrum of fields from geotechnical and structural earthquake engineering, to engineering seismology and seismic risk assessment and management. Scientists, professional engineers, researchers, civil protection policymakers and students interested in the seismic design of civil engineering structures and infrastructures, hazard and risk assessment, seismic mitigation policies and strategies, will find in this book not only the most recent advances in the state-of-the-art, but also new ideas on future earthquake engineering and resilient design of structures. Chapter 1 of this book is available open access under a CC BY 4.0 license.

This book presents computational tools and design principles for piles used in a wide range of applications and for different loading conditions. The chapters provide a mixture of basic engineering solutions and latest research findings in a balanced manner. The chapters are written by world-renowned experts in the field. The materials are presented in a unified manner based on both simplified and rigorous numerical methods. The first four chapters present the basic elements and steps in analysis of piles under static and cyclic loading together with clear references to the appropriate design regulations in Eurocode 7 when relevant. The analysis techniques cover conventional code-based methods, solutions based on pile-soil interaction springs, and advanced 3D finite element methods. The applications range from conventional piles to large circular steel piles used as anchors or monopiles in offshore applications. Chapters 5 to 10 are devoted to dynamic and earthquake analyses and design. These chapters cover a range of solutions from dynamic pile-soil springs to elasto-dynamic solutions of large pile groups. Both linear and nonlinear soil behaviours are considered along with response due to dynamic loads and earthquake shaking including possible liquefaction. The book is unique in its unified treatment of the solutions used for static and dynamic analysis of piles with practical examples of application. The book is considered a valuable tool for practicing engineers, graduate students and researchers.

This book provides a state-of-the-art review of floating offshore wind turbines (FOWT). It offers developers a global perspective on floating offshore wind energy conversion technology, documenting the key challenges and practical solutions that this new industry has found to date. Drawing on a wide network of experts, it reviews the conception, early design stages, load & structural analysis and the construction of FOWT. It also presents and discusses data from pioneering projects. Written by experienced professionals from a mix of academia and industry, the content is both practical and visionary. As one of the first titles dedicated to FOWT, it is a must-have for anyone interested in offshore renewable energy conversion technologies.

Petroleum technology, Natural gas, Offshore construction works, Drilling rigs, Petroleum, Natural gas extraction, Petroleum extraction, Maritime structures, Structural design, Structures, Oceanography, Ocean waves, Winds

Safety and Reliability – Safe Societies in a Changing World collects the papers presented at the 28th European Safety and Reliability Conference, ESREL 2018 in Trondheim, Norway, June 17-21, 2018. The contributions cover a wide range of methodologies and application areas for safety and reliability that contribute to safe societies in a changing world. These methodologies and applications include: - foundations of risk and reliability assessment and management - mathematical methods in reliability and safety - risk assessment - risk management - system reliability - uncertainty analysis - digitalization and big data - prognostics and system health management - occupational safety - accident and incident modeling - maintenance modeling and applications - simulation for safety and reliability analysis - dynamic risk and barrier management - organizational factors and safety culture - human factors and human reliability - resilience engineering - structural reliability - natural hazards - security - economic analysis in risk management Safety and Reliability – Safe Societies in a Changing World will be invaluable to academics and professionals working in a wide range of industrial and governmental sectors: offshore oil and gas, nuclear engineering, aeronautics and aerospace, marine transport and engineering, railways, road transport, automotive engineering, civil engineering, critical infrastructures, electrical and electronic engineering, energy production and distribution, environmental engineering, information technology and telecommunications, insurance and finance, manufacturing, marine transport, mechanical engineering, security and protection, and policy making.

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