

1. Record Nr.	UNINA9910827768803321
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Titolo	Stochastic dynamics of marine structures // Arvid Naess (Norwegian University of Science and Technology), Torgeir Moan (Norwegian University of Science and Technology)
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
ISBN	9781139021364 1-139-79355-1 1-316-08916-9 1-139-78217-7 1-139-02136-2 1-107-25399-3 1-139-77614-2 1-139-77918-4 1-283-71591-0 1-139-77766-1
Descrizione fisica	1 online resource (xiv, 410 pages) : digital, PDF file(s)
Classificazione	TEC009000
Disciplina	627/.980151923
Soggetti	Estructures marines Dinàmica estructural Processos estocàstics Offshore structures Structural dynamics Stochastic processes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: 1. Preliminaries; 2. Dynamics of single-degree-of-freedom linear systems; 3. Dynamics of multi-degree-of-freedom linear systems; 4. Finite element method; 5. Stochastic processes; 6. Variance spectrum; 7. Environmental loads; 8. Random environmental processes; 9. Response spectrum; 10. Response statistics; 11. Statistics for nonlinear problems; 12. Short-term and long-term extremes; 13. Dynamic load effects for design checks; 14.

Equations of motion; 15. Numerical solution techniques; 16. Monte Carlo methods and extreme value estimation.

Sommario/riassunto

Stochastic Dynamics of Marine Structures is a text for students and reference for professionals on the basic theory and methods used for stochastic modelling and analysis of marine structures subjected to environmental loads. The first part of the book provides a detailed introduction to the basic dynamic analysis of structures, serving as a foundation for later chapters on stochastic response analysis. This includes an extensive chapter on the finite element method. A careful introduction to stochastic modelling is provided, which includes the concepts: stochastic process, variance spectrum, random environmental processes, response spectrum, response statistics and short- and long-term extreme value models. The second part of the book offers detailed discussion of limit state design approaches, fatigue design methods, the equations of motion for dynamic structures and numerical solution techniques. The final chapter highlights methods for prediction of extreme values from measured data or data obtained by Monte Carlo simulation.
