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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preliminaries -- Dynamic Load Positioning -- Coupled Nonlinear Flexible Marine Riser -- Flexible Marine Riser with Vessel Dynamics -- Riser System with a Torque Actuator -- Marine Installation System -- Riser Installation System -- Mooring System.
Sommario/riassunto	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: <ul style="list-style-type: none"> - 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. Advances in Industrial Control aims to report and encourage the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.
