

Preface

Offshore structures are unique in the field of engineering, as they pose many challenges in the development and conceptualization of design. As innovative platform geometries are envisaged to alleviate the encountered environmental loads efficiently, detailed understanding of their analysis and basic design becomes important. Structural dynamics, being an important domain of offshore engineering, require intensive teaching and guidance to illustrate the fundamental concepts, in particular as applied to ocean structures. With the vast experience of teaching this subject and guiding research, a humble attempt is made to present the basics in a closed form, which will be useful for graduate students and researchers. Chapters in this book are organized such that the reader gets an overall idea of various types of offshore plants, basic engineering requirements, fundamentals of structural dynamics and their applications to preliminary design. Numerical examples and application problems are chosen to illustrate the use of experimental, numerical and analytical studies in the design and development of new structural form for deep-water oil exploration. This book is an effort in the direction of capacity building of practicing and consulting offshore structural engineers who need to understand the basic concepts of dynamic analysis of offshore structures through a simple and straightforward approach.

Video lectures of the courses available at the following websites: (i) <http://nptel.ac.in/courses/114106035>; (ii) <http://nptel.ac.in/courses/114106036>; and (iii) <http://nptel.ac.in/courses/114106037>, which also substitute the classroom mode of understanding of the contents of this book.

My sincere thanks are due to my professors, colleagues and my students who have given their valuable input and feedback to develop the contents of this book. In particular, I wish to express my thanks to Mrs. Indira and Ms. Madhavi for their editorial assistance and graphic art support extended during the preparation of manuscript of the book. Author acknowledges the support extended by Centre of Continuing Education, Indian Institute of Technology Madras for publishing this book.

I also owe a lot of thanks to all the authors and publishers who have earlier attempted to publish books on structural dynamics and allied topics, based on which I developed my concepts on the said subject.

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<http://www.springer.com/978-81-322-2276-7>

Dynamic Analysis and Design of Offshore Structures

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2015, XXV, 287 p. 145 illus., 64 illus. in color.,

Hardcover

ISBN: 978-81-322-2276-7