Preface

In the last few decades, much research work was conducted to improve ship structure analysis and design. Most of the efforts were directed to improve the strength of hull girder and to use the method of finite element analysis more efficiently and effectively. Because of the high degree of complexity of ship structures the interaction between hull girder strength and local strength require special attention. Any structural element of the ship hull girder is subjected to several types of stresses including the fabrication and residual stresses. The stresses induced by hull girder and local loadings include the primary stresses, secondary stresses and tertiary stresses. Local loading comprises tensile, compressive, lateral, shear and torsion loadings. This complex system of stresses could produce unacceptable deformations and high values of equivalent stresses. Most of the methods commonly used for ship structure analysis and design focus on the stresses induced by hull girder bending and shear as well as the stresses induced by local lateral loadings.

This book is intended to cover an area of ship structure analysis and design that has not been exhaustively covered by most published text books on ship structures.

Also, it addresses a very complex subject in the design of ship structure and presents it in a simple and suitable form for research students and practicing engineers.

In addition it presents the basic concepts of the methods and procedures required to calculate torsion and shear stresses in ship structures.

Moreover, it presents valuable analysis and design material on torsion and shear loading and stresses. The book therefore should be very useful for practicing naval architects and students of marine engineering and naval architecture. The book is enhanced with a set of some solved and unsolved problems.



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