



## METADATA

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### Abstract

This book contains the chapters of "Fluid Mechanics" that are considered essential for Naval Architects. It starts with the basic theory of Fluid Dynamics which is also useful for a more general audience, like the fluid kinematics and the equations of fluid motion, the theory of dimensional analysis and the theory of boundary layers. In the introductory chapters there is systematic use of vector analysis, which facilitates the derivation of the equations of fluid motion. Subsequently, two areas of fluid mechanics which are useful specifically to Naval Architects are covered, namely the theory of lifting flows and the theory of water waves.

The theory of lifting flows, which consists of the theory of thin hydrofoils and of the theory of lifting surfaces, is an essential tool for the analysis and design of marine propellers. The theory of water waves is a required knowledge for the computation of the wave resistance of ships and the analysis of the dynamics of ships in the ocean. As both areas, lifting flows and water waves, rely upon the assumption of irrotational flow, the book contains a chapter where the theory of irrotational flow is covered rather extensively. Finally, solved exercises have been included in all chapters to aid with the understanding of the theory.

