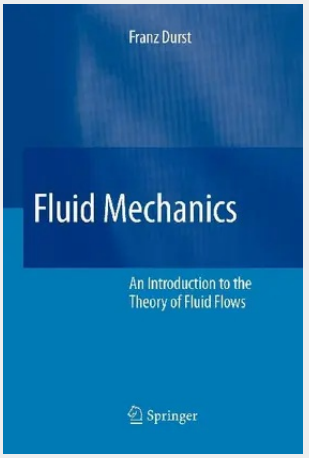
Durst

Fluid Mechanics

An Introduction to the Theory of Fluid Flows



79,98 €
74,75 € (zzgl. MwSt.)

Nicht mehr lieferbar

Fluid mechanics is a field that spreads widely and to all fields of engineering, science and medicine. The book takes this into account and provides a sound basis.

This is a modern book on fluid mechanics that is written in a way needed these days to teach the subject to students in engineering and science at higher educational institutes. The book is well structured for this purpose and is arranged in a logical teaching sequence of chapters. It is starting with an introductory chapter that contains also the summary of the history of fluid mechanics. In two chapters the basic knowledge in mathematics and physics is summarized to provide the background information needed by the students to enter the fluid mechanics. Kinematics of fluid motion is briefly described followed by the complete derivations of the differential form of the continuity and momentum equations, as well as the mechanical and thermal form of the energy equation. Subjects like hydrostatics, similarity theory,potential flows, gas dynamics etc. are treated in an introductory way to lead the students into fluid mechanics. The t_ij terms are introduced to describe the molecular momentum transport and their complete derivation is given by looking at the basis of molecular motions like that in an ideal gas. Subjects like one-dimensional viscous flows, stationary and in stationary, are treated to give the students an introduction into laminar flows. Wave motions in fluids, low Reynolds number flows, high Reynolds number flows and flows with heat transfer are treated to permit the students to get introductory treatments of important parts of fluid mechanics. Introductions are also provided into numerical computations of flows, into turbulence, as well as into measuring techniques as applied in fluid mechanics. In this way, the entire theory and practise of fluid mechanics is treated in the book, providing the student with information needed for more advanced books in specialized subjects of fluidflow treatments.

Advancements of fluid flow measuring techniques and of computational methods have led to new ways to treat laminar and turbulent flows. These methods are extensively used these days in research and engineering practise. This also requires new ways to teach the subject to students at higher educational institutions in an introductory manner. The book provides the knowledge to students in engineering and natural science they need to enter fluid mechanics applications in various fields. Analytical treatments are provided based on the Navier-Stokes equations. Introductions are also given into numerical and experimental methods applied to flows.

The main benefit the reader will derive from the book is a sound introduction into fluid mechanics with introductions into subfields that are of interest to engineering and science.

TWM Brief Market Research Report

Advanced Fluid Mechanics

Market Size Estimate 5,100

Market Leaders:

1) White – Viscous Flow 2/e, ’06 (McGraw-Hill) 1,300 25%

2) Kundu/Cohen – Fluid Mechanics 3/e, ’05 (Elsevier) 1,000 20%

3) Panton – Incompressible Flow 3/e ‘05 (Wiley) 900 18%

4) Currie – Fund Mechanics of Fluids, ’03 (CRC) 450 9%

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