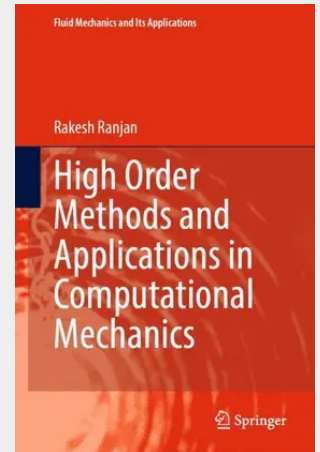


High Order Methods and Applications in Computational Mechanics

This book provides a comprehensive, self-contained guide to solutions of partial differential equations with both finite element and finite volume methods. Upon discussing different formulations of finite element methods, it focuses on solution techniques with various formulations, including collocation, Galerkin, least squares, and stabilized finite element methods. In turn, it presents solutions to problems concerning heat transfer, coupled heat and mass transfer, and structures applications. The book also covers problems relating to incompressible and compressible flow, magnetic refrigeration, and aerodynamics of high-speed reentry vehicles. All in all, this book is intended to equip graduate students and researchers with enough implementation details for using finite element and finite volume methods in a variety of applications in both structural mechanics and fluid dynamics.

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